THIRD PANEL OF THE SECOND TRIPTYCH—STATE CAPITOL, SACRAMENTO, CALIFORNIA.
Painted by Arthur Mathews.
Spanish Californians Awaiting the Landing of Commodore Sloat.

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Shadows and Straws

Announcing the Press of the American Institute of Architects, Inc.

WITH this issue of the JOURNAL, publication is transferred from the old Committee on Publications to the Press of the American Institute of Architects, Inc., a corporation formed also for publishing books, pamphlets, reprints, or other literature relating to the art and science of architecture. The Handbook of Professional Practice, by the late Frank Miles Day, is now in process and the announcement of other publications will follow.

The Institute's ownership of the JOURNAL property is represented in the new corporation by the stock of the Press, all of which remains in the treasury of the Institute. The new working capital is represented by a bond issue, of which $50,000 has been authorized and about $34,000 has been taken by over 350 members of the Institute. The balance will be sold as rapidly as possible.

The Board of Directors of the Press is elected annually by the Board of Directors of the Institute. The Board elected for the current year is as follows:

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The Board of Directors of the Press wish to make the following statement:

The JOURNAL is intended to be the Institute forum for the free expression of ideas and opinions concerning every phase of architecture in all its fields. The discussion at the recent Convention in Washington of such subjects as housing, town planning, draftsmen's unions, trades' unions, jurisdictional disputes, small house bureaus, registration, state societies and the suggested building trades parliament indicates the variety of problems that are thrusting themselves upon the profession. They must be met intelligently, acted upon wisely. This can only be done by constant free discussion.

It is the hope of the Directors that the JOURNAL will be made the vehicle for this discussion and used in a sense as a continuing convention in which all members of the Institute may speak as freely as on the floor of the annual convention. It assumes no responsibility for the opinions expressed in its columns. It believes, per contra, that the members of the Institute should assume the duty of so expressing themselves, and the invitation so to do is extended to the profession generally. Space will be afforded to the greatest extent possible. The members of the Institute should be zealous in guarding the independence of their journal and fearless in using its columns, especially for speaking directly to their fellow members on questions that engage their mutual interest. The JOURNAL serves no interest but that of the common welfare and seeks only to find and present the truth.

THE ATTENTION of our readers is particularly directed to the Structual Service Department of this issue where are recorded the results of the study by the Structural Service Committee of the merits of "Vitri-flux." We believe that the profession will appreciate this kind of service and will welcome this evidence of the fast increasing usefulness of the Committee and of this department of the JOURNAL. The report of the Committee which called for a very considerable expansion of its activities was referred to the Board of Directors by the Convention.

The new Structural Classification Index as adopted by the Convention is also published in this issue. It is, of course, subject to continual expansion and improvement as detailed experience may suggest, but it does afford, for the first time. a standard index possessing great possibilities of usefulness as the Committee soon proposes to show.

The Crisis in Architecture

By ARTHUR J. PENTY

III. THE NATURE OF ARCHITECTURE

THERE is perhaps no single idea the acceptance of which would give such stability to architectural policy as the frank recognition of the fact that architecture and industrialism are finally incompatible and that all attempts to graft one on the other must fail in the end. If the profession could be persuaded to face that undoubted fact the contradictions that are inherent in existing policy would rapidly disappear. For we should then be under no temptation to be constantly changing our policy and style of work in order to win popular approval, but should be able to work together for definite architectural ends. And the unity that would thereby be brought into our ranks would, by giving the public confidence in us, react to bring us that success for which at present we search in vain. Immediately such an act of intellectual renunciation would, by enabling us to see the problem confronting us in its proper perspective, be followed by a return to fundamentals and we should be content to give to our newly discovered principles such limited application as circumstances permitted, sure in the conviction that a social and economic system that exhibited tendencies antipathetic to the needs of architecture was itself suffering from some internal malady that must end by destroying it. Of all the moribund ideals, that of modern architects of making architecture the expression of the age—that is, of industrialism—is surely the most moribund of all. For it is a contradiction in terms. It is to make architecture the expression of something that we all really know to be antipathetic to architecture, however much we try to conceal the unpleasant truth from ourselves. Architects who believe that architecture should express the modern age can have no status as reformers. They ought to be satisfied with the architecture of our streets as they exist. For the confusion, in which it is involved, certainly expresses the intellectual economic and political confusion of the modern world. In these circumstances if we seek an architecture that is orderly we inevitably are searching for something that does not express the modern world, but is prophetic—prophetic of a coming social order. Truth to tell, Architecture was never at any time the expression of the age in which it was practised, except in the sense that it expressed its aspirations. The civilization of Greece never attained to the orderliness and calm of Greek architecture; nor did Roman Society approximate in order to its architecture. Gothic architecture expressed the Mediaeval promise that was never fulfilled.

Of course it is easy to understand why architects to-day are so much concerned to bring architecture into relation with the age. It is because the circles of influence antipathetic to architecture are closing in upon us, threatening us with extinction. We have unfortunately little option but to yield to them in practice. But we are under no necessity of believing in them, of persuading ourselves that evil is good because it happens to be successful. If we cannot realise our ideals, at any rate no one demands that we should idealize the real. And if architecture is lost in the visible world we ought all the more jealously to guard its traditions of thought from corruption; for such traditions are the seed from which the architecture of the future must arise.

If architects are ever again to become a driving force they must finally be dogmatists. They must believe that certain things are right and certain things are wrong. Nothing short of this can create in us that faith that will remove mountains. All the great movements that have conquered the world have been possessed of such a faith. Their followers believed certain things were eternally true, and stood by them in times of persecution and neglect. The faith that they exhibited under such trying circumstances was contagious and ended by carrying all before it. So it must be with us. If we want architecture to succeed we must believe that architecture has a substance and content independent of the circumstances of its practice. And we must not be frightened by words. If people say that what we do is exotic, or a make-believe, or an anachronism or anything of that kind, we must ask them to define precisely what they mean by such words and I think we shall generally find they don't mean anything. Above all we must meet every crisis by broadening the basis of our faith rather than by narrowing it, and make of every defeat the means whereby a greater victory may be achieved. The thing is not impossible. It has been done over and over again in the world. Anyone who understands the meaning of the Christian paradox, "He that would save his soul must lose it," understands the paradox that lies behind all successful movements.

I can understand the hesitation of architects to follow such advice. One of the most successful men in the profession in England recently said to me when discussing the problem of the architect, "that

the difficulty of formulating any policy was that anything that was done invariably produced some result the opposite to that intended." Now I imagine most architects will have had that experience, and I ask myself why this undoubtedly is the case. The answer is I think because it is a tradition of the profession never to challenge prejudice, but to attempt to circumvent it by means of tact. There is much to be said for this policy. Endless difficulties can be got over merely by the exercise of tact. But it is important for us to recognize that there is a definite limit to what can be achieved by such means. Tact can remove the minor personal difficulties but it cannot remove the major impersonal ones. There is only one way of removing these and that is to challenge them. If we fought everything in modern society that was detrimental to the interests of architecture as resolutely as the Labor Movement fights everything detrimental to the interests of Labor a time would come when we should be listened to. But of course before that is possible we must be very clear in our minds not only as to what we mean by architecture but as to the nature of the popular psychology. Moreover we must do our best to help to bring into existence a culture that will form a bond of mutual sympathy and understanding between ourselves and the public, for as I have already said, it is finally the absence of any such common culture today that is the secret of our troubles.

Meanwhile efforts should be made to arouse the building interest among the public, and the first step towards this end will be taken when we throw overboard the Rennaissance academic tradition, since, so long as it remains as the architecture ideal, it must remain impossible to popularize architecture; for an architecture to be popular must be democratic. Of this we have conclusive evidence, for it was the academic architects of the eighteenth century who destroyed popular interest in the art. And so we may be assured that if this type of architecture actually succeeded in destroying a popular interest that was in existence it is vain to suppose it can be used as a weapon to revive an interest that is nonexistent. "Pure architecture," as it is called, bores the average man. It is cold, distant and uninviting. It is a kind of aesthetic intellectual abstraction with no flesh and blood about it, and so the ordinary man who is all flesh and blood and has no particular interest in intellectual abstractions has no interest in it. And I believe the ordinary man is right; for after all this academic architecture is at the best only second-rate work, and has only an educated appeal. But really great architecture like all great art has a popular as well as an educated appeal; because all great architecture differs from vernacular architecture in degree rather than in kind. It recognizes all architecture as being of one and the same substance, and as such interposes no barrier between the architect and his public.

Now the difference between the Renassiance or academic and the Medieval and vernacular architecture may be defined as follows. Academic architecture begins with considerations of abstract form: Mediaeval architecture begins with consideration of materials. The former seeks to eliminate all local color and texture of material in order to attain to pure form; the latter accepts and delights in the differences of material and bases its treatment upon a frank acceptance of their differences. It is for this reason that Mediaeval architecture varies in its treatment from material to material and from locality to locality, and the higher forms of it that exist side by side with such vernacular work is really an expansion or projection of the primitive ideas of craftsmanship, differing in degree rather than in kind from ordinary building. And as such it is a higher form of architecture than the academic one; for whereas academic architecture treats only of forms and largely ignores color, Mediaeval architecture not only dealt with the problem of color, but employed a different treatment for each material it used. To take a parallel, academic architecture may be likened to the music produced by a piano whereas, Mediaeval architecture is the music of an orchestra and the degree of skill required by the architect to produce Mediaeval architecture differs from that required to produce academic architecture as musical composition for a piano differs from composition for an orchestra.

Mediaeval architecture is at the same time more difficult and more easy to produce than academic architecture. It is more difficult because in its higher forms the architect needs a higher degree of skill to combine successfully so many different materials and colors; while it is easier to the extent that in its lower forms the craftsman in times of settled traditions can attain to success merely by following his instincts. Compared with architecture of this order academic architecture appears to me as an abnormal art due to the overdevelopment of the logical faculty and is no more entitled to rank as the highest form of architecture than the intellectual, whose reason is his master rather than his servant, ranks as the highest type of mind. Though we often may admire the achievements of such men we are generally conscious that they miss reality, and are essentially unbalanced; for one side of their nature has been overdeveloped at the expense of the other sides. Even so is it with academic architecture; the abstract side has been developed at the expense of the emotional and craft side.

Now I feel it is vain to suppose that it is possible to

revive architecture on a basis of such abnormality and on the principle that it is no use nurturing a tree at the head when it is dying at the roots; we must return to the craft basis of architecture if any popular interest is to be aroused. And in this connection I would observe that to have a popular appeal architecture must be pleasing in color. I have noticed that where circumstances have enabled me to build with materials of a pleasing color and texture my work has been popular; but where, as in other cases, I have had no option but to use inferior material, it has aroused no interest whatsoever, though the design has been of equal merit; while again, on the contrary, I have noticed that inferior design executed in good material and color has created popular interest. So important do I think this question of material to the popularization of architecture that I feel collective action should be taken to insure that good materials should be on the markets. In my experience the greatest difficulty is to get good bricks and tiles. All my life I have felt their fundamental importance, yet only upon half a dozen occasions have I been able to build in decent material; and circumstances have compelled me to use material I knew to be ugly. If it has been my experience it must have been the experience of most architects. Cost scarcely enters into the question; I have found the difference between using the best hand made bricks and machine ones for facings was only one per cent of the total cost in ordinary domestic work.

In the use of beautiful material we have then a link between ourselves and the public, as in its aesthetic use we have the basis of architecture. The heresy of Professor Lethaby is, I am persuaded, due to the fact that he placed the centre of gravity of his philosophy in construction rather than materials; for construction leads inevitably to engineering, as the right use of materials leads to architecture. And here again we see that the Lethabean heresy is on all fours with the academic heresy. As the academic heresy is due to exalting logical form which should be the servant of architecture into its master, so the Lethabean heresy is due to exalting construction which should be the servant of architecture, not its master. In each case it is exalting something that should be a means towards an end into an end in itself, and as such is a part of modernism which has been well defined as a "synthesis of all the heresies." If we make material rather than construction the basis of our architecturel philosophy we recover our liberty because we may exercise choice in the materials we use. If we want to use ferro-concrete because it subserves our ends then we shall use it, but if we don't want to use it we shall not allow ourselves to be bullied into using it because, as they say, "it has to come," for we shall recognize in all such apologetics a game of bluff. Why should ferro-concrete have to come, supposing we don't want it? Well, there is only one answer that I can find, and that is we are not clear in our own minds as to what we do want and so can be stampeded into this or that. All evil things have been imposed upon the world in this way. The argument has always been "it has to come." And nobody asks why?

The only right attitude towards new discoveries and inventions is to consider them on their own merits, seeking always to determine their relationship to architecture as a whole. Heresy let us remember is not necessarily something false but the running amuck on one aspect of truth to the damage or denial of others. It is a loss of "the sense of the large proportions of things." We must ever be on our guard against supposing that the new necessarily supplants what has gone before. Experience teaches us that this is rarely the case, and that when seen in its true perspective, the new, if it survives, generally turns out to be supplementary to the old rather than destructive of it. Most modern inventions remedy one evil to create another.

If the use of beautiful material be accepted as the basis of a revived architecture it follows that each material should be given its own appropriate treatment. It is impossible to say in words exactly what this means, but every true architect and craftsman knows that every material possesses some quality peculiar to itself, and that the buildings that most impress us are those which give emphasis to the intrinsic qualities of the materials used. And this is just as true of the early Renaissance buildings we admire as of Gothic or Byzantine. What is really impressive about the best of Wren's work is the genius he had for expressing the qualities of Portland stone. While again, it is the entire absence of any close relationship between the forms of design and the material used that makes the later academic Renaissance so extremely dull and uninteresting, as is natural when we remember it was the aim of the architects of this period to attain to a "pure architecture" by the elimination of all local color and texture in materials. The principle of giving each material its own peculiar treatment should be followed not only with respect to the structural parts of the design but also with respect to the treatment of the decorative adjuncts. Thus, in carving any natural object it would be the aim of the craftsman to suggest not only the general form of the thing intended but the kind of material in which it was carved. In other words the treatment would be conventionalized. A lion would be emphatically a stone lion, a wooden lion, a bronze lion or a painted

lion as the case might be; it would never be a merely naturalistic lion for in each case there would be no mistaking the material of which it was made. The form in each case would be developed along the lines that the technical production of each material most readily suggested. That is the secret of convention.

This delight in material is an effective safeguard against the temptation towards over-elaboration. In marble work the architect does not seek to impose an elaboration of detail on richly colored marbles but leaves them as they are perfectly plain in order that their richness may tell to the greatest advantage, while he uses white veinless marble where he wants mouldings and carving. In the same way if we could always use beautiful material we should come to recognise instinctively the value of plain surfaces in design. We must learn to think primarily in material rather than primarily in form. The form should be subordinated to the material, not the material to the form. Though this was an unwritten law in the days of the Arts and Crafts Movement it is not necessary to be a craftsman in order to give application to it except perhaps when we come to decorative work. It appears to me the craftsmen were guilty of exaggeration when they affirmed that only by the actual handling of material could beautiful work be produced. The real truth is that the designer who does not handle material must keep more closely to precedent than the craftsman, for new ideas in design must have their basis in actual experiment with material. It is also much easier for a craftsman working with material than for the architect working on paper to produce good results since the architect to be successful needs to be possessed of a higher power of vizualization to produce work of equal merit. It is not true to say that no good architecture can be produced so long as the architect is an office man; but it is true to say that under such circumstances it is far more difficult to succeed in producing it.

As we become clear as to the nature of our principles the architecture of the future will gradually be revealed to us. If we frankly accepted differences of material as the basis of design it would follow that the treatment we gave to each building would be conditioned by the materials natural to a particular locality, at any rate so far as the exterior treatment was concerned. Where possible we should base our treatment upon local style; for local style is the treatment that craftsmen in the past gradually evolved by actual contact with the materials of their localities. But while we should accept local style as the basis of our treatment because of the feeling of the soil it gives, we need not be limited by it; after we had mastered it we should seek to enrich the local tradition with such ideas borrowed from the architecture of other places and countries as could be readily assimilated. And this is not a difficult matter once the habit is acquired of building up our treatment from fundamentals. Indeed after a time it may become just as easy to combine ideas from different periods and countries as to follow in the grooves of any particular style. For instance it is possible to combine ideas derived from the vernacular English brickwork with ideas of brickwork derived from the Netherlands and from Italy, though generally speaking it is only the simpler or germ ideas that will so combine. The more highly developed forms of different styles do not readily combine. But the primitive forms often will, and when so combined they become a point of departure for the development of a new tradition. Of course in such an enterprise taste and discrimination are needed and it is better for an architect to keep within the bounds of existing styles than to attempt such a task if he is not quite sure of himself. But if we submit our tastes to a rigid discipline and study the evolution of styles, after a time such liberty becomes instinctive for all spontaneity in the arts is finally the flower of discipline.

Looking at architecture from the point of view of materials the usual historical divisions of styles are seen to be largely arbitrary though not entirely so; for such divisions lead us to associate many things that are only accidentally associated and to ignore the close relationship of things that belong to the same order of ideas but are found in different historical periods. Thus there is a closer affinity between Gothic brickwork and Renaissance brickwork than between Gothic stonework and brickwork; or the things that Gothic and Renaissance brickwork have in common are more important than their differences, while the things Gothic brickwork and stonework have in common are secondary. These things are obscured for us by the fact that architectural literature deals almost entirely with churches and palaces in stone. Other types of buildings in other materials are only dealt with in a very casual way. This leads to a very distorted idea of architecture which has been followed by systems of architectural education that study the subject from the wrong end. Instead of the student being taught all the simple things, of becoming familiar with all the units of which architecture is built up, he is set to study the elaborate buildings of the styles, with the result that as his knowledge is not organic with his mind, he cannot think freely in architecture in the broader sense but only within the limits of a particular style; and if fashion should change, he throws over one style and adopts another much as he would change a suit of clothes. In consequence there is little growth of architectural comprehension. We adopt a style,

run it for a few years and then it is exhausted for us. And so it will be until we understand that the study of architecture like every other subject should begin at the bottom with a study of simple buildings and simple things instead of with the elaborate ones. To promote education on such lines our literature will need to be rewritten. We ought to have books on brick architecture, stone architecture, on timber buildings, on carpentry and all the crafts. And such books should in the first place confine themselves to the simplest examples of each period and craft. They should begin by an examination of the units of each style giving details of all the ordinary things that repeat themselves, working on the principle that the most important things to know about every style are not the exceptional things but the things that are common to all buildings in the style. Then the principles of setting out should be explained. How valuable would be books that collected together types of window frames, door jambs, sections through eaves, or roof plans—in fact, of all the units of which architecture is built up. If these were carefully arranged in historical sequence showing how one type was gradually replaced by another every architect would be in possession of valuable data for whatever he was required to do. It is true, I think, to say that if one is sure of the units a building almost designs itself. The compilation of such data might in the first instance be undertaken by architectural societies. Every architect has got a private collection of such data. If it could be gathered together and arranged, material would then be available for building up a real theory of architecture, that would be practical at the same time. We should soon be emancipated from the styles. I can on this point speak with some experience. In the days of my pupilage I spent my time making elaborate drawings of buildings from which I learnt scarcely anything. Later I came to the conclusion that everything depended upon knowing the units of design. I gave up sketching and took to making notes and I found I learnt a hundred times as much from them with a tithe of the labor. I think I may say I first began to feel I understood something about architecture from that time. But when students have come to ask my advice as to how to study design my advice in recent years has never been followed because as they say the kind of study I have found by experience to be so beneficial would not get them through the R. I. B. A. examination. The American Institute is to be congratulated on having decided to abolish the examination system. It is a millstone round our necks. There might be something to be said for examinations if we knew exactly what we wanted to teach, but so long as architecture remains in its present experimental stage they do more harm than good, for they tend to strangle at the beginning any new development of thought. I am firmly convinced that the examination system is one of the things that keeps us out of the promised land. It robs the architect of intellectual independence, and independence is the breath of life in art. No wonder the tail wags the dog in these days.

The Housing Situation in Great Britain

By G. D. H. COLE.

THE houses in which men and women live and the way in which their towns, suburbs and villages are planned, exercise a profound influence over their lives and ways of thought and action. That is, of course, a platitude; but it is a platitude which is of very great importance in connection with any program of Reconstruction. We must go on repeating it, trite as it is, because, although it is recognized as a platitude, it is by no means taken as a basis for action.

The various housing and town-planning organizations in Great Britain were fully alive, when the time came to begin the work of Reconstruction, to the need for keeping those platitudes, which are also vital truths, constantly before the mind of the public. They reopened with great vigor their propaganda, which had been largely reduced during the earlier years of the war. They sought to insist, and to make the public and the Government realize, that in embarking upon the great house-building which must take place both to make up the war-time arrears and to improve the housing standards of the people, it was imperative that the new plans should be broadly and generously designed, and that the work should be conceived in accordance with a definite ideal of both planning and building. Their propaganda met with practically no theoretical opposition. Prominent men of all parties and interests gave their support. It was unanimously agreed in theory that we must re-house our people, not at haphazard, but in accordance with a clearly realized ideal. But when it came to actual schemes and building operations, nearly all the fine ideals gave way before the difficulties of the situation and the timid and unimaginative policy of the Government. The result is that for the most part we are still not building houses at all, and that where we are building, the houses are being erected on no definite

plan, in the wrong places, and on mean and unworthy designs.

The great difficulties were two—the first financial, and the second the result of the inadequacy of the present system of local government to deal with any great problem affecting town and country alike. The financial difficulty has been the more generally realized by the ordinary public; but the other is well understood, by those who have ideals of housing and planning, to be in reality no less serious. Even if there had been no financial problem of any magnitude, it would have crippled us for the achievement of any really satisfactory housing reform.

The essential financial obstacles are two-fold—the extraordinarily high cost of building and the extreme difficulty of raising money by loans, save at almost prohibitive rates of interest. The high cost of building is due partly to the abnormal prices of building materials largely controlled by close rings and combinations, and partly to the increase of all charges, including higher wages and greatly enhanced expectations of profit, as well as higher interest on capital required by the builder for the execution of the job. This means, of course, that every house built at present, and especially every working-class house, is built, in a double sense, at a loss. It is impossible to obtain, or to ask for a rent at all corresponding to the capital cost, and if prices come down, as they are expected to do in a few years' time, the actual capital value of the houses will then be very much less than their present cost of construction. The Government's measures for dealing with this situation are to agree to shoulder all but a small proportion of the prospective loss incurred by local authorities which embark on housing schemes, and to make certain quite half-hearted and ineffective endeavours to reduce costs.

The effect of this assumption by the State of most of the ultimate dead loss on new housing schemes is, unfortunately, directly responsible for a tendency to reduce the standard of the houses which are building. No one will grieve when the Ministry of Health and the Treasury insist on the elimination of all ornament that can be dispensed with; for such ornament never yet made an ugly house anything save uglier. But it is a far more serious matter when economy takes the form of insisting on actual reductions in the standard of comfort, light, air, and good building. This, however, is too often the result of the Government's desire to cut building costs, and therewith the State's own ultimate liability, down to a minimum. Moreover, the local authorities themselves, upon whom, in view of the complete cessation of "private enterprise," almost all the burden of building falls, are in part inclined, and in part impelled, to follow the same policy. They are inclined, where they consist largely of persons who think that any rabbit-hutch is good enough for a workman or ex-soldier to live in; and they are impelled, by the insistence of the Government, once more on financial grounds, that rents shall be fixed as near the economic level as possible. Thus the local authority is often in a dilemma. If it builds good houses, the Government will insist that it shall charge rents which most workers will not be able to pay; if it wants to keep its rents down to a reasonable level, it is compelled to build bad houses, at least until and unless some way of substantially reducing costs can be found.

The houses, then, that are built will be largely of inferior types. Moreover, there will not be nearly enough of them; for even now, sixteen months after the termination of hostilities, we are not building fast enough to make up leeway, much less to improve the standard of housing and relieve overcrowding, which becomes worse and worse. This, again, is mainly a financial question. The Government, despite the requests and demands of most of the bodies interested in housing, has refused to find the capital required on a national basis by means of a national housing loan or levy, and except in the case of the very small authorities, which can receive loans from the State, has thrown the burden of raising the money required on to the local authorities. The London County Council, which ought to be in a better position than any other authority to do this, has recently arranged for a loan of £7,000,000; but most of this has had to be taken up by the underwriters. Throughout the country, an attempt is at present being made to raise the money by means of Local Housing Bonds; but I can find few persons optimistic enough to believe that there will be anything like an adequate response. With the Bank Rate at 7 per cent, and countless speculators and promoters of all sorts in the market looking for capital at almost any price, all save the very largest local authorities are in an extremely bad position for raising money. This means that although everybody talks constantly about the need for speeding up the housing schemes, there are not a few who are, to say the least, half-hearted, and inclined to say that the slow progress made is really a blessing in disguise. I do not think the Government itself can be acquitted of adopting this double attitude—of saying much in public of the need for houses and trying to throw the blame of delay on Trade Unions or local authorities, and at the same time of congratulating itself in private that its liability is being limited by the failure to get on with the work.

So much for the financial difficulties, which are big enough. Behind them is the fundamentally even more serious, because more radical, difficulty

which arises out of the present structure of British local government. Housing and town-planning fall to be dealt with under a central supervision which is almost purely financial, by the various local authorities, County Councils, Town Councils, Urban District Councils. This means that each such authority is responsible for housing the people who live within its own area, although it may have actually to build the houses it requires largely in the area of a different authority. The effect of this system is disastrous. The Towns or Urban Districts, and above all the larger towns, are irresistibly impelled to re-house their populations merely by extending their urban fringe, and so, in the long run, aggravating the problem of urban congestion. The Counties, which are rural areas not for housing purposes, including the towns, have little money, and will certainly not take upon themselves the responsibility of developing the countryside for the urban populations to move out into. In short, where what is above all needed is a replanning of whole regions including both town and countryside, regional planning is, to all intents and purposes, excluded by the obsolete structure of British local government.

Almost everybody in Great Britain who cares for housing, for beauty, for the health of the people, for good industrial and economic conditions, for human welfare in the broadest sense, is agreed that a redistribution of population, and, of course, of industry also, between the huge urban aggregations on the one hand, and the small towns and the countryside on the other, is an indispensable and pressing reform. Industry cannot move out of the big centres unless two requirements are satisfied—unless adequate transport facilities are provided, and unless there is somewhere for the workers to live. Given these conditions, it is impossible to doubt that a decentralization of industry would result in a vast gain both in economic efficiency and in human welfare. Yet such a development is altogether obstructed by the present system of local government, which means that the tendency is towards a growing concentration of industry in a few centres, and that the clearance of one slum area merely creates another—and often a worse one—in its immediate neighborhood, while at the same time it causes the overgrown suburbs to extend, in an ever-broadening belt of ugliness, around the great cities.

Consequently, the opinion is ever gaining ground that there can be no real solution of the housing and planning problem until it is possible to plan, not merely suburbs, or the few hundred acres of a particular housing scheme, but whole regions, each including within its borders large and small towns and countryside. This means a fundamental change in the basis of British local government—the creation of large regions as areas of administration for housing and transport, and for the various public utility services, such as electricity, which are intimately bound up with town and regional planning. Such a reorganization cannot be accomplished merely by the systems of Joint Committees between the existing authorities which are sometimes recommended; for this would still leave each authority responsible for, and thinking of, its own population alone, and would raise vast financial difficulties. Nothing but the reorganization of local government on a regional basis will be of any substantial use.

Clearly, however, such a big reorganization will not come in a day or a year, particularly from a Parliament which has little or no time to attend to such popular needs. For some time yet, we shall muddle along with our housing problem, putting up bad or indifferent houses, usually in the wrong places and never in accordance with any definite plan. And then, some day we shall discover how we are wasting our hundreds of millions of pounds, and we shall set to work on the lines which, even today, almost everybody who cares at all, knows to be right. Then, and not till then, we shall begin to build the "Britain fit for heroes," which figures so prominently in the Prime Minister's speeches, but is so little to be seen in town or country today, or looked for in the new houses and suburbs which our local authorities are promising to build.

Arthur Mathews—Painter*

"IF YOU want knowledge, you must toil for it." Thus spake John Ruskin—and he knew. For thirty and more years he toiled patiently and continuously in research and study of painting, sculpture, and architecture in Italy. No contemporary writer has given us such an insight into the "Romano-Bizantina" and Renaissance periods of this land of the "Mother of Arts." His knowledge, scholarship, and profound study of the Bible enabled him to arouse in his fellow men a new interest in art, not as "an affair of mere taste for the luxury of connoisseurs, but indeed an affair of deep, widespreading human concern for society at large."

We must toil long and unceasingly for the little

*Arthur Mathews is a native Californian. In early life he studied architecture, later forsaking it for lithographic engraving and illustration and finally drifting into painting. He studied under Boulanger in the Jullien Academy at Paris and on his return to the United States became head instructor in the Mark Hopkins Institute of Art. When this was merged with the University of California, he became director of the art school of that institution. From this he resigned to devote himself to other work.—*Editor.*

MONTEREY CYPRESS—Painted by Arthur Mathews.
Metropolitan Museum, New York City. The gift of Mrs. Henrietta Zeile.

knowledge most of us can ever hope for. Thus one wonders, after having toiled somewhat in the field of architecture and conscious of the limitations of a modern architect, whether the world will ever again give birth to geniuses such as Giotto, who designed and built its monuments, and decorated them with sculpture and color, expressing the ideals and sentiments of the people and their environment.

If such gifted artists are to be denied us, then individual architects, painters, and sculptors must find something more in common and express themselves as moderns. With some notable exceptions, we erect public monuments and cover their walls with symbols in paint and sculpture that reflect nothing of our community life; they are borrowed from the past and are meaningless.

There is one panel of the Puvis de Chavannes murals in the Pantheon of Paris that will always remain in our memory—the painting of St. Genevieve watching over her beloved city—it is so simple and beautiful in color, so full of dignity and pathos, that one feels the inward prayer for the people in their hour of trial—a pictorial expression of one of the many struggles of the heart of France—an expression more powerful than mere letters or words. Such is one of the great purposes of mural painting. These paintings with their delicate and exquisite coloring in complete harmony with the soft, cool tone of the interior masonry, have a natural place upon the walls, and seem to be just as much a part of the temple, and just as expressive, as the Pantheon in its relation to the great city surrounding it.

Ruskin tells us "that you will need no further conviction of the first law of a noble building, that grandeur depends on proportion and design—not, except in a quite secondary degree, on magnitude. . . . But the glory of architecture is to be—whatever you wish it to be—lovely, or grand, or comfortable, on such terms as it can easily obtain . . . Grand—by proportion—lovely, by imagination—comfortable, by ingenuity—secure, by honesty; with such materials and in such space as you have got to give it." So with architectural painting—it must be lovely by imagination, pleasing and sincere in its accomplishments, and in such space as you have to give it.

Much of modern painting, with its pretense and striving for unusual and novel effects, is confusing to the average man who expects a "reasonable likeness to nature to be a part of the scheme in painting . . . designed in tone and fairly representative of what it pretends, natural or otherwise." Such pictorial skill might satisfy the curious and even be ever a delight if within the range of the intellect and vision of the modern man. It is said that with a deep resolve to look at things as they were, Giotto "suddenly thrust aside all the glitter and all the conventionalism; and declared that he saw the sky blue, the tablecloth white, and angels, when he dreamed of them, rosy. . . . And he simply founded the schools of color in Italy—Venetian and all."

Quoting from Sylvester Baxter: "No living painter can put away his modernity. Though he may assimilate the feeling of the ancient art he cannot approach his subject in the spirit of the masters of bygone centuries—their simple faith, their sublime confidence in its reality, their direct and perhaps naive interpretations. It is not desirable that he should. He has his task to work out in his own way, and the spirit of his own century must in some fashion infuse itself therein if it is to be vital creation and not an echo of the past." We expect to see the modern mural decorator at his best in strong and earnest work; the subject must be agreeable and pleasing to the painter, and that he may exert his full vigor and power, it must be of size; above all the subject should be interesting to others.

Few artists in America have had such an opportunity as Arthur Mathews in which to display pictorial skill in mural decoration. California, with its wonderful atmosphere, reminds the visitor particularly of sunny Italy. Our state has been more than lightly touched by romance. The Spanish occupation, with its gentle Franciscan fathers, once more lures the artist to paint the story of St. Francis which became such a passionate tradition in and subsequent to Giotto's time—"told and painted everywhere with delight." The numerous works of Mathews cover a field of wide range and versatility—portraiture, the nude, landscape, marine and architectural painting.

The twelve decorations in the rotunda of the state capitol building at Sacramento are divided into four triptychs, representing in periods the life and development of California; beginning with the aborigines and the first appearance of the white men; the Spanish occupation, settlements, and building of the Missions; the kindly and thoughtful padres, monastic and domestic, with their influence upon the natives and their encouragement of agriculture with the cultivation of the olive and vine and other fruits of civilization; then the American invasion following the discovery of gold, with the swift industrial development and other achievements in California, and finally visions and glimpses into the future.

Definiteness of periods has not been maintained, the circle of walls giving rare opportunity for a continuity in which the painter could the more freely develop his theme. The peaceful conquest of the favored land and the urge of worthy endeavor are therefore carried forward in a procession of symbolism from the first panel to the last.

These murals, with their accompanying symbolism, may suggest some daring and originality in their conceptions as compositions; nevertheless there is a restraining strength and respect for traditions—the desire for natural expression and no striving for the unusual or novel. As in Mathews' other larger paintings, there is a superb draftsmanship and at times a brilliant display of skill in the handling of masses of color. In the drawing of the figures, something of the gift of portraiture is revealed besides well-composed groupings; wherever these figures appear, there is always an interesting background of hill country, sea or bay, and now and then a bit of architecture, and, as in the "Dream City," more of it, and in an important place; a subject interesting for him to do. Throughout his work one sees the infinite care bestowed upon each and every detail; be it only a tree or some foliage, there are the same carefully drawn lines and "no forgetfulness of main subject, but in harmony and completion of it."

In Mathews' work there is that sense of beauty, power, and harmony of color—at times delicate, simple, and with gathering strength flowing out into a wealth and brilliancy of tone—luminous and gorgeous clouds floating and rolling in a sky of beautiful blue over sea and bay of that deeper blue known to "Monterey" and the "Riviera"—that feeling for rare color which so powerfully expresses our California atmosphere. May we hope that these paintings will be a heritage and inspiration unto the future in this land of the setting sun.—E. A. M.

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First Tripiych—State Capitol, Sacramento, California—Painted by Arthur Mathews.

The natives, in consternation, are holding up their hands in attitudes of peace. A more frightened Indian, in his uncertainty, has sought refuge behind a rock. In the second panel comes the Spirit of Adventure, in the Knight Errant vainly seeking the Fleece, or who might be one of the Hospitalier bearing the sword of justice. The Angel of Light is carrying the secrets of life. The primitive woman with her boy but half understands the sympathetic touch of the Christian monk behind her. She perhaps feels the glamor of the procession heedlessly passing; she feels but does not know. The Angel passes silently, like a will o' the wisp—still the native mother does not know; nor does she know or see the heavily laden bearer who swiftly but stoically follows "The Light," abreast the knight. In the third panel is the discovery of San Francisco Bay. A handful of Spanish pioneers, soldiers and friars—worn by travel and ill with scurvy—discover the inland sea. They barely count in bulk with the open country; still they are laying the foundation of a great state and its teeming multitudes.

FIRST TRIPTYCH—STATE CAPITOL, SACRAMENTO, CALIFORNIA—Painted by Arthur Mathews.

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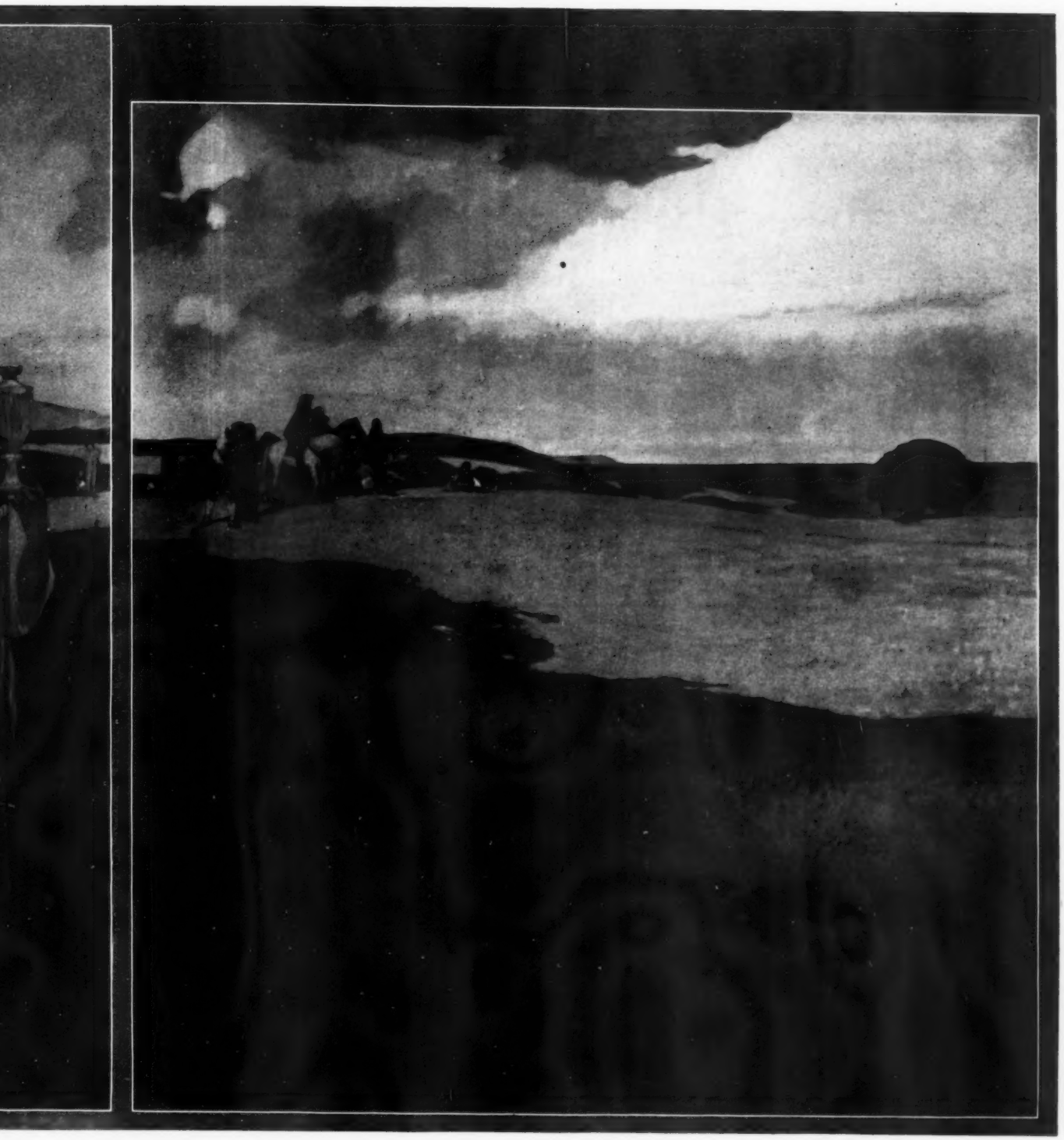

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THE FOURTH TRIPTYCH—STATE CAPITOL, SACRAMENTO, CALIFORNIA.

Painted by Arthur Mathews.

This may be described as representing the consummate labor of humanity—the end toward which the civilization of California is, in common with all civilization, striving. The first panel, with its care-free, joyous, festival spirit, contrasts with the third, which is expressive of achievement—of the matured works of age. In the center panel, the city bordering the sea forms a setting for the colossal statue of Contemplation, at which the worker is still laboring—for we are never quite sure that the work is accomplished—and is the embodiment through the arts of human desires. The final panel—the Dream City of Beauty and Justice, or the goal toward which Endeavor is driven by the urge in the white man

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PAINTING—By Arthur Mathews

53rd Annual Convention of the Institute

ADDRESS OF PRESIDENT THOMAS R. KIMBALL

I know I owe it to you to say something restful, consoling, encouraging, even hopeful; certainly no section of mankind has a better right to hear and see and feel itself fairly valued and reasonably appreciated than have the architects, as one small division of that great army, to whose skill and patriotism, self-sacrifice and public devotion, all men owe this, their latest survival—and our million, more or less, millionaires, their war-made millions. Surely nothing would better satisfy the yearning within me than to be able to say these things that are due to be said, so to say them that they might be heard of all men.

To commerce, well organized and keenly alive to its opportunity, a golden harvest has been returned—returned in figures that are almost unbelievable. "Scandalous" is the word used by a merchant of my acquaintance, to characterize the tidal wave of ever increasing profit that has poured in upon him, among others, whose lives chanced to be cast in the moulds of barter and trade.

Of the host whose offering was service, war-needs have brought to these engaged in so-called "useful pursuits" a bounty hardly less profligate; while to the architect and many of his brother professionals, without whose technical skill and far-reaching vision neither commerce nor labor could have passed beyond the first line defences—to him, and to them, the fickle hand of fate has offered little beyond the chance to show the material of which he and they are made, and to furnish examples of that finest of God's creations—"a good loser." All of which intensifies my regret that I may not cry the facts from the housetops to the farthest corners of the land, and so loud that none should fail to hear.

Much as I honor the game spirit that prompts it, the ever present smile behind which we architects seek to hide the unhappy truth, is becoming little short of sickening. Can it be that that threadbare word "camouflage" is to be our legacy from the War? Must we go on displaying this brand of deceit—human pewter masquerading under a silver hallmark—that we may laugh with the rest of the world? Is it right, is it fair, to keep up the smile for the sake of an exploded idea? Isn't it time to discard *deception* and try the *truth?* Why should we punish the profiteer when profiteering is the teaching and example and pride of our people, and during our generation at least, always has been? If we are to condemn the "added talent" of Scripture, why encourage a great central Chamber of Commerce lobby headquarters here in Washington? Why continue to invite the charge of maintaining a local architectural lobby, for that matter? Why a percentage (a profiteer's) basis for professional service? Why call ourselves a National Society on hardly a 10 per cent representation? Why attempt a comprehensive program with a Country Club organization? Why nation-wide laws when our problems are local? Why continue to smile and pretend to be happy after seven years of privation and in the face of seven more of uncertainty? Why keep on trying to legislate against the laws of nature; and, finally, why such topics and questions here and now?

The last is, perhaps, the only pertinent question in the list. The seven lean years through which we have lived, with the prospect of seven others before us that may be even more trying, should have convinced us that something is wrong, and that whatever it is, it is no mere detail. Two years of purposeful though none too well appreciated effort by the Post-War Committee have helped me, at least, to the conclusion that in this self-centered age the professions (so-called) are marching in the vanguard of the army of selfishness, carrying a banner of deception bearing the motto, "Do unto others as you would be done by."

Our Institute is run by a Board of Directors, always wisely chosen and always functioning beyond criticism. It has been officered, during this administration at least, by a group whose only strife has been a contending to share each others' loads. A masterly report by our beloved Secretary will shortly lay before you in detail the record of Institute activity—all of which is my excuse for transferring the President's address to a field of generalization and speculation rather than of detail and record.

I know of no organization whose possibilities are greater—possibilities for service to Society, I mean. And I take it that so to serve to the limit of its capacity is what justifies any professional organization, this one not excepted. Two years of close observation, sharpened by the responsibility they imposed and kept at high tension by reason of unusual and rapidly changing conditions—two years in which an indulgent constituency and a willing, efficient instrument have given me most generous help, provide my excuse for assuming to parade before you, as worthy of attention, a group of ideas that, reduced to lowest terms, are neither more or less than your retiring President's personal opinions.

For the sake of argument let us keep in mind the fact that while the American Institute of Architects is still far from being numerically representative of the profession, it has from its birth furnished to the profession the ideals and examples after which the architectural practice of this country has been patterned, and has always been the court of last resort before whose bar all its serious and most important questions have been decided. Wherefore, in assuming for the Institute the credit of such leadership

we are debarred from disclaiming our share of the blame, where blame exists, for conditions that are not consistent with what should be present-day architectural heritage. During the sixty-three years of the life of the American Institute, profound changes have taken place in almost everything but the Institute itself; possibly out of love for its traditions, possibly largely the result of habit, those responsible for the A. I. A. have not seemed to take into account that its work has grown out of all proportion to its membership and machinery. The official instrument adequately to represent and make the most of a great public servant, such as is our profession, should count as members approximately one-half of those who legitimately practice that profession, which means we owe it to our pretenses to promptly secure a membership of at least 3,000, which in turn means better than doubling our present list. To do this, and do it fairly, changes are essential, membership must be made both more attractive and more easily attained. I place representation, adequate representation, as one of possibly three essential fundamentals in which the American Institute is not quite filling the bill.

A second important item in which we must assume for the Institute full responsibility, is the example set to all architects as well as to all professions, of valuing professional service upon a percentage basis. To the baneful effects of this one *faux pas* I ascribe most of our really serious troubles. Certainly failure to hold, in a higher degree, the confidence of the public and of the client, is traceable directly to this fallacious and mischievous source of suspicion which we have erected into a barrier between ourselves and our clients and Society. Until architects as a class realize this and better understand the nature and extent of the harm done, I feel perfectly sure they will never enjoy that position of trust in the community to which their qualifications should entitle them, nor will they achieve that degree of usefulness which the public has a right to expect of them; and until the American Institute has set the example of changing this, to me, perfectly indefensible system, to one which by its nature removes the cause of suspicion, I feel the Institute will continue to occupy a position of not quite "filling the bill." This item of a right basis for professional charges is, to my mind, one of those three fundamentals in which we are not quite measuring up, and for which I earnestly bespeak a cure.

My third complaint is a more domestic matter, and has to do with one of our intimate peculiarities. Does it require argument to commend the very best form of organization? Is our work less in need of the elements that make commercial organizations succeed? If leadership is the keynote to success, is there any good reason why we should disregard those conditions that foster just that element in practically every form of organization that goes forth to do a man's work. The Executive found in municipal, county, state, and national organizations has always some element of power which, like the White House veto, provides the trading basis whereby the Executive may to some extent enforce the consideration of his policies. Throughout industrial and commercial life, the same control of power that places an executive in office provides him with the kick he needs to make leadership worth exercising. In most social clubs and in professional associations the executive means little more than nominal leadership, and its functioning seldom even justifies that. There is indicated for this association, however, a tremendous opportunity and one that should justify clearing the way for the highest type of Executive leadership. I can offer no suggestion fraught with more promising possibilities than that our future Presidents should be provided with an instrument more effective than the opportunity to persuade and the right to vote in case of a tie.

Certainly no member of the Iustitute could undervalue the honor attendant on executive preferment at the hands of its membership; but it is conceivable that in the light of possible achievement some very desirable candidate might seriously weigh his chances of rendering a service—under present conditions—that would warrant the sacrifices involved in the two years of concentrated thought that will more and more be demanded as we more and more fully accept for the A. I. A. its obligations to Architecture and to Society. Let those who would have the Institute more fully measure up to its ever increasing opportunities for leadership in service to the public consider well this thought.

Now just a word of the satisfaction and regrets that mark this passing Administration. For the thousand added memberships for which I made my futile appeal of a year ago I have not quite a thousand regrets, but, unhappily, nearly so; comparison with the progress made by other professional groups shows the Institute in its usual position—at the foot. While a net gain of 83 in 1919 is said to be almost the banner performance of our history, it compares but feebly with 1,232 for the same time, as an average result, in the case of five engineering societies; or with one particular technical society, fifty years of age, which in one week added to a membership of 1,200, just 2,000 new members—illustrating what may be done with tools, even though in our case we might not care to use the same tools. As a step toward a real result in the membership campaign that is in the air, let me suggest tinkering a bit with a time-honored canon that forbids competition in price. Let us open the door (by abolishing this canon) to all those boys who have been too honest to accept a law they felt it dishonest to abide by; and to all those beginners who through modesty have hesitated to assume equality of performance with the leaders of the profession—which only could justify equally high fees. I believe that alone would enfranchise the whole balance of the thousand, for which I am recording a regret.

Undoubtedly, the most unusual activity of the

present Administration, and I believe it the most unusual in the history of the Institute, is the work of the Post-War Committee. For me, it sets the high-water mark of satisfaction. The liberality and courage with which the Institute supported its President in this entirely unselfish, as well as unusual activity, will go far, I think, to answer the critics whose complaint has been that we are a close corporation with only our own interests at heart. I know of no parallel, no case where a professional body has generously financed an effort in which its members were no more interested that were all the rest of the profession; and in this case, too, it has not been only the profession of Architecture, but every profession, that has come in for its share of attention, and will certainly reap part of the reward. The way in which the Post-War Committee and its Executives Council have devoted time and energy when those two essentials were, perhaps, at their highest market price, is a matter of the greatest gratification to me, and should be a source of pride to every member of the Institute, and every architect in this land.

My regrets in this connection have to do with conditions beyond our control. It would be a paradoxical to include the ending of the war among things to be deplored, yet there is no denying that the signing of the Armistice brought to a sudden close a period of great mental activity and promise; particularly is this true among those workers who had been forced to make the greatest sacrifice as a consequence of the war. Depleted larders and colossal obligations were not to be ignored, but it is *regret*, not criticism, that expresses my feeling for those who at that time dropped completely all occupations, physical and mental, that had not to do with recuperation. It is to this occurrence and condition that I wish to direct the attention of all those who may fancy that the Post-War Committee's effort has in any sense been lost. Nature's finest growths are from slow-germinating seed, and I have no hesitancy in prophesying that the seed sown by the Post-War Committee will yield a perennial crop, and of exceptional value, as long as architects shall practice and their works endure.

In the one item of Inter-Professional relationship the Post-War Committee has sown a seed, the fruit of which will, I believe, be of incalcuable and immediate value to every one whose contribution is service. It may well be that in this one suggestion there may have been started that new social instrument for which we have all been waiting, and the need of which is so eloquently espressed in every phase of the ever-increasing struggle between the hosts of progress and of inertia which marks beyond all other things the age in which we live.

I should be recreant to my sense of duty were I to omit recording a protest against such a wide difference as exists in the Institute between the workers and the others. We can hardly hope for great Institute achievement while it is left to so few to serve so many. In this thought I voice the personal contribution of our Secretary in his ever-recurring plea that the Chapters may come to recognize that they are the Institute, and as such may begin to assume its responsibilities and duties.

For those among us—I may not say how large or small the group—whose evident pleasure it has been to destroy and obstruct, I have only the wish that they may come to see the error of their ways before it is too late to perform some useful service in extenuation. Perhaps in no particular has unfriendly manifestation been more fruitful of misfortune and more costly to the Institute than in the continued opposition on the part of certain individuals and groups to the success and growth of the JOURNAL, the continued high character of which is certainly one of the greatest satisfactions that I have to record.

Among the contributions to Institute welfare and success that we should not fail to recognize, is the creation of the Architectural Press, and we must render to our Treasurer, Mr. Waid, a tribute of appreciation for his part in it, worthy of the example he has set, in going outside of his implied responsibilities to offer a splendid service to the Institute, and at a cost to himself in time, patience and money, sacrificed, that it is hard to overestimate.

In connection with certain occurrences during this administration for which some may feel sorrow, I should be inconsistent, preaching to a text of "truth in place of deception," if I were to express regrets for any circumstances resulting from the placing by anyone of any individual personality at a higher value than the best interests and welfare of our beloved Institute. I, therefore, intentionally omit from this address the recording in such cases of the usual expression of regret. Before closing, I wish to record my deep appreciation of all who have worked with me in the service of the Institute during the past two years, many of whom are of those who not only hide their light under a bushel but who do their praying in secret as well. Certainly no Executive of the Institute has ever had more loyal support, and I believe none has more highly valued such support.

Let me close with a plea for a larger view of things architectural, that we may not fail to correctly interpret the messages meant for us in the readjustment taking place in the world today. If in the physical *impasse* that threatens to stop all building, regardless of cost, there are signs of the ultimate return of money to its legitimate place as a scale of measurement; and if in the new significance that has been given to the word "*denationalize*" we may rightly discern a first step toward the universal brotherhood of men, then I say there is that in our future to justify all and everybody that has sacrificed, and our abiding faith in the wisdom and justice of all things.

53rd ANNUAL CONVENTION OF THE INSTITUTE

Summary of the Convention Proceedings.

The Convention assembled in the Hemicycle of the Corcoran Gallery of Art on Wednesday, May 5. It adjourned finally on the evening of May 7, at the close of the informal dinner at the Chevy Chase Club.

All of the sessions were marked by great harmony and a very evident desire on the part of the delegates for a full and free expression of opinions. Perhaps no Convention has ever dealt with a greater variety of subjects, and certainly no Convention was ever more alive to the problems which have been forced urgently to the front as a result of the war and the reactions produced. As always, regret was expressed that the Convention could not arrange to devote more time to the esthetic side of architecture, but it must be obvious that if the profession is to deal intelligently with the collateral factors of the building industry—and these are in no way abating their demand to be dealt with—the time of the Convention will have to be extended at least another day. In the present case, it was apparent, near the close, that discussions of important matters had to be briefed in order that the full calendar might be concluded.

The Convention was also marked by several new departures. The presence of the invited officers of some of the State Societies lent a more democratic atmosphere to the whole event, while the address of Mr. Haggerty, representing the Bricklayers of Philadelphia, evoked the heartiest applause. So far as the writer knows, this was the first time that a Convention has listened to an opinion directly from the ranks of the workman. Perhaps it is an augury for the future, for the experiences of the architects of Philadelphia in meeting with the bricklayers of that city in a joint discussion of their common problems, as narrated in the JOURNAL and as described by Mr. Haggerty, must have left a deep impression on the delegates.

The architectural exhibition which had been assembled through the cooperation of many Chapters was also voted a great success and the Convention directed that every effort be made to establish it as a permanent feature of all future Conventions. The most important actions of the Convention must be summed up with the utmost brevity, but one does not hesitate to venture the prediction that the Proceedings of this occasion will be of the greatest interest, and that they will afford a book of reference which architects will consult over and over again. The Convention opened with the address of President Kimball, which may be found on page 220 of this issue.

Membership

The total membership of the Institute on May 1, 1920, was 1,580 (as against a total on April 15, 1919, of 1,499), and is made up as follows:

Fellows	287
Members	1,178
Honorary Members	81
Honorary Corresponding Members	34

Since the last report of the Board there have been:

Advanced to Fellows	8
Elected Members	130
Reinstated	5
Elected Honorary Corresponding Member	1

There have been the following resignations and removals:

Fellows	4
Members	26

The total of new active members elected has been 135.

The total number of resignations, removals and deaths of active members has been 51, leaving a net gain in active members of 84.

The following deaths have occurred during the year:

Fellows

George Archer
J. Cleveland Cady
Henry W. Hartwell
Otto H. Matz
R. H. Robertson
C. F. Schweinfurth
George T. Tilden
Wm. S. Wicks
James H. Windrim

Members

Victor F. V. de Braumers
F. L. Francis
Thomas F. Huber
Woodruff Leeming
Hill C. Linthicum
George T. Pearson
E. A. Richardson
Edw. P. Russell
G. T. Snelling
James Sweeny
Fred. A. Tompson
Clarke Waggaman

Honorary Members

Andrew Carnegie
W. C. Sabine

Honorary Corresponding Members

Tokuma K. H. Katayama
Tatsuno Kingo

Finances

The report of the Treasurer disclosed the following gratifying financial situation of the Institute:

	Dues received	*Expenditures.*
1914 (less than)	$23,000.00	$23,800.00
1915 (about)	25,000.00	21,599.00
1916 (about)	25,000.00	21,482.00
1917	25,815.00	24,443.00
1918	23,502.00	22,457.87
1919	28,075.00	33,760.44

The excess of expenditures over receipts in 1919 is accounted for by the expense of the Post-War Committee and the JOURNAL. To meet this excess, $4,800 was borrowed from the Reserve Fund, which now stands at $34,778.96 for in spite of the heavy expenses for 1919, the sum of $5,620.13 was added to the Fund.

The Reserve and Endowment Funds

In this connection the Treasurer's report reveals the fact that resort has been had to the Reserve Fund but three times. First, $3,000 was taken to pay off the mortgage on the property adjoining the Institute, saving an annual interest charge, and giving the Institute free ownership of a property which has much increased in value. Second, $1,500 was taken to pay Mr. Glenn Brown for making the drawings of the Octagon used in publishing the Monograph. The remainder of these books is now owned by the Institute which hopes ultimately to sell them and repay

the underwriters who subscribed the fund for the publication of the Monograph. Third, the sum of $4,800 was taken as described above. This is to be repaid in annual instalments, with interest, the first of which, in the amount of $1,000, is provided for in the budget of 1920.

In accordance with a mandate from the Fifty-second Convention, the Board submitted to the Fifty-third Convention amendments to the By-Laws in regard to the establishment of an Endowment Fund, "which is intended to be inviolate as to its principal so long as the American Institute of Architects shall endure." The amendment was adopted, together with another ordering the transfer of $20,000 from the present Reserve Fund to the new Endowment Fund. The Board now has power to add to the Endowment Fund, from the Reserve Fund or other sources, in such sums and at such times as it may determine. The income of the Endowment Fund shall be used only for the maintenance and improvement of the property of the Institute, or for increasing the principal of the fund.

The Treasurer also reported that more than 350 members of the Institute had subscribed for bonds of the new Press, in the amount of over $33,000. (A statement in this connection may be found on page 207.)

The Journal

At the request of the Board of Directors Mr. Medary prepared a historic statement of the JOURNAL which was read to the Convention. This report will be published in the Proceedings, although we regret that its exceeding length makes it impossible to publish it in the JOURNAL. It sums up the history of the JOURNAL from its inception, gives a complete financial summary for each year's operations, and will, it is hoped, give members of the Institute an idea of the problems that have been encountered, for, as Mr. Medary said: "The world went to war in the summer of 1914, and the JOURNAL, when only a year and a half old, with no capital, was faced with a struggle for existence arising out of rapidly rising costs and readjustments of all phases of industry, reaching a climax during the participation of our country in the war, and now entering a phase where the almost prohibitive cost of construction offers no immediate hope of stabilized conditions in the building industry."

Touching upon the new Press of the American Institute of Architects, Inc., the report of the Board of Directors contained the following:

"The organization of the Press and its bond issue does not terminate, however, all financial relations between the Institute and the JOURNAL. The Board believes and so recorded in the Minutes of the Meeting in New York, November 11, 1919, that the Institute should carry in its budget each year an appropriation for the JOURNAL in recognition of the work done for the Institute by Mr. Whitaker which, while ultimately connected with his work for the JOURNAL, is wholly Institute in its effects. The Board has assigned out of its contingent item in the budget for 1920 the sum of $500. It is the hope of the Board that in future years an increased income will permit of an adequate apportionment for this purpose.

"Ever since the JOURNAL was started the question of the distribution of the JOURNAL to every Institute member in return for a definite portion of his dues, which portion would be turned over to the JOURNAL in payment therefor, has been a moot question. The Board believes that this policy should be made effective as soon as possible. Matters of Institute finance, as well as JOURNAL policy, however, are involved. The sum required by the regulations would be about $4 for each member. This represents 20 per cent of our income from dues, a sum between six and seven thousand dollars. To do this, without increasing dues, would seriously handicap the normal activities of the Institute unless a sudden large increase in members made up the deficit."

(Note: By resolution of the Convention the Board was authorized to arrange for the distribution of the JOURNAL to all members if, in its opinion, the finances of the Institute would permit it.)

Education

The report of the committee was very exhaustive and was explained in general by Mr. Zantzinger, while Mr. Nimmons detailed the second half of the report relating to the proposed publication of a new book on the Fine Arts, designed not only to serve as a textbook in colleges and other institutions but also as a general handbook for the public, among which it is hoped to stimulate a greater appreciation in the fields of architecture and the allied arts. Doubtless the program for an essay, which is to form the introduction to this book and which was printed as an appendix to the report, later will be made generally available to all those interested.

The report of the Committee contained the following resolutions which, with slight deviations in the case of the second, were recommended for adoption by the Board:

WHEREAS, The schools of architecture generally are so organized as to condense their period of study to four years, and

WHEREAS, A consideration of the courses given shows that they are generally good but hampered by a too great condensation, and

WHEREAS, It is the conviction of the Convention that more courses, more thoroughly given, are requisite, therefore be it

Resolved, That the American Institute of Architects does hereby recommend to all schools to lengthen their course in architecture to a period to exceed four years in order to make it possible to include such necessary studies as have been left out of the curriculum, and to give more time for the more complete assimilation of the subjects taught.

The resolution was laid on the table, after lengthy discussion.

The second resolution was adopted, as follows:

WHEREAS, The American Institute of Architects has previously and does now encourage the adoption of laws for the registration of architects by all states, and have to this end prepared a typical law for the guidance of such legislation, and

WHEREAS, The efficacy of such laws can be greatly enhanced by the adoption of proper standards of professional competency and equitable methods for their determination, therefore be it

Resolved, That the American Institute of Architects, while convinced that many states will wish to set up higher standards, recommend as a minimum standard both of professional competency and methods for its determination, the standard adopted and the methods now employed by the State of Illinois.

Structural Service

The report of the Structural Service Committee, together with the new Standard Construction Classification is published *in extenso* in the Structural Service Department of this issue, page —. The question of financing the proposed extension of the Committee's activities was referred to the Board of Directors.

Small Houses

The report of the Committee on Small Houses narrated chiefly the history of the formation of the Architects' Small House Service Bureau, Inc., of Minnesota, an account of which appeared in the May JOURNAL. The Convention enthusiastically approved the suggestion made by the Committee and the Board of Directors of the Institute therefore was directed to organize the "Architects' Small House Bureau, Inc., of the United States." The resolution embodying this action explained that this should be "a national body, properly incorporated, the Board of Directors of which shall be identical with the Board of Directors of the Institute." The function of this body would be to guide and control the formation and operation of other Small House Service Bureaus in the United States. It would have no financial transactions whatever.

The adoption of this program may be said to have crowned the efforts of numerous men and Chapters in the Institute, during the last few years, looking to the contribution, by architects, of a widespread and inexpensive professional service to people who desire to build small houses. The Minnesota Bureau has already begun the publication of a small descriptive bulletin called "Your Home," in which are illustrated and explained the several types of houses, the plans for which are offered for sale at nominal prices. Other bulletins will be issued and ultimately this work may be taken over as a part of the JOURNAL.

(Note: The Convention directed the appointment of a committee to consider the whole problem of financing the building of houses.)

State Societies

This subject was very thoroughly covered in the last number of the JOURNAL, and was of course much debated during nearly a whole session of the Convention. It was evident that all were on common ground in seeking the method of professional organization which would best meet the needs of all the architects of the United States. The Board, in its report, recommended that a special committee be appointed "to study the subject fully in relation to varying local conditions to the best development of the Institute organization, and the most effective organization of the profession as a whole to meet the needs of different districts and report to the Board of Directors at its meeting just prior to the Convention of 1921." This recommendation was adopted.

(Note: It was voted, as the sense of the meeting, that this action should not be construed as nullifying the action of the last Convention, which directed that the Board "encourage the organization of State architectural societies.)

Competitions

The Board, at the request of the Boston Chapter, referred to the Convention the following resolution: "An owner may purchase unlimited professional service on a basis of adequate remuneration and control, where two or more architects prepare sketches at the same time and in the same manner for the same project, provided the following conditions are complied with: The owner shall provide a professional advisor. He shall be an architect of the highest standing, and his selection shall be the owner's first step. The professional advisor shall see that each architect employed be informed as to all the others, and the remuneration for the preliminary service so rendered be uniform for all and agreed upon by all the architects employed as satisfactory and adequate.

"The professional advisor shall see that all drawings requested of the architects be on the same basis and presented in the same manner, and he shall act in an advisory capacity only, the owner not being obliged to accept the recommendation of the advisor in making the final selection."

The proposed change in the Competition Code served again to indicate the very great difficulty of setting up a statute governing the conduct of architects, in negotiating with a prospective client, such as will protect all the parties concerned against unfair dealing. In reading the proceedings, this chronicler is struck with the very evident conviction of those who defended and those who opposed the resolution, and their arguments raise questions not by any means lightly to be decided. In the end, a substitute motion prevailed, by which the Board was directed to request all the Chapters to send to it a digest of their considered opinion, so that the question may be more intelligently discussed at the next Convention.

Schedule of Charges

The suggestion of the Cleveland Chapter that the minimum rate in the Schedule of Charges be raised from six to eight per cent was referred back to the Chapters of the Institute for study during the coming year, the Board being authorized to issue a statement covering the point, if it sees fit.

Jurisdictional Disputes

The publication in the JOURNAL of the list of awards made at the first sitting of the National Board of Jurisdictional Awards, together with a reminder to members of the Institute that they had been bound by action of the Fifty-second Convention strictly to observe these awards under penalty of suspension, gave rise to much inquiry and some misgivings. The Chairman of the

Board, Mr. Russell, addressed the Convention on this matter, and explained that the awards apply to union labor and the employers thereof. Architects working exclusively in open shop districts may specify any material they like under whatever heading they choose. If, however, their work is performed by what is known as the closed shop, in part or in whole, they will save themselves a great amount of trouble by simply segregating classes of work, according to the decisions of the Board of Awards, in their specifications. No reference has to be made to "union" or "non-union" labor. (Note: An official circular of information will be issued to members of the Institute.)

Community Planning

The report of the Committee is published under the Housing Section of this issue.

Conclusion

The above summary will furnish some idea of what happened at the Convention. In the brief time between its close and the going to press of the JOURNAL it is impossible to go into further details. But brief mention must be made of some of the incidents which lent pleasure and charm to the sessions. No delegate will forget, for example, Mr. Kendall's delightful presentation of the report of the Committee on Nominations; or Mr. Sturgis's urgent appeal that Mr. Coolidge consent to let his name stand in nomination for the office of President; or the regret with which Mr. Coolidge expressed his inability to assume the burdens of the office; or the greetings expressed to Mr. Keller and Mr. McLaughlin, both of whom have been members of the Institute for more than fifty years. These brief moments of fine fraternal feeling served to relieve the strain of discussions which rose at times to more than usual heights of interest and brilliancy.

There was no award of Fellowships. In the report of the Board it was stated that no nominations had been made "in view of a very strong sentiment in opposition to past procedure." A committee has been appointed to study this question and it is hoped that definite recommendations governing the nomination of Fellows may be made to the next Convention.

Committees of the Institute for 1920

Immediately after the Convention the Board of Directors met and appointed the Committees for the year, the appointments being subject to acceptance. The complete personnel of the committees will later be published in the Annuary. The appointments were as follows:

Executive Committee

HENRY H. KENDALL	Boston, Mass.
WILLIAM STANLEY PARKER	Boston, Mass.
D. EVERETT WAID	New York
ROBERT D. KOHN	New York
ERNEST J. RUSSELL	St. Louis, Mo.

Committee on Practice

JOHN LAWRENCE MAURAN, *Chairman*	St. Louis

(Members in Chapters reappointed. See the Annuary for 1919.)

Judiciary Committee

WILLIAM B. FAVILLE, *Chairman*	San Francisco, Calif.
RICHARD E. SCHMIDT	Chicago, Ill.
ABRAM GARFIELD	Cleveland, Ohio

Board of Examiners

EDW. W. DONN, JR., *Chairman*	Washington, D. C.
A. P. CLARK, JR.	Washington, D. C.
OSCAR G. VOGT	Washington, D. C.

Committee on Contracts

WM. S. PARKER, *Chairman*	Boston, Mass.
M. B. MEDARY, JR., *Vice-Chairman*	Philadelphia, Pa.
F. E. DAVIDSON	Chicago, Ill.
EDWIN H. FETTEROLF	Philadelphia, Pa.
GOLDWIN GOLDSMITH	Lawrence, Kansas
SULLIVAN W. JONES	New York
E. J. RUSSELL	St. Louis, Mo.
RICHARD E. SCHMIDT	Chicago, Ill.

Committee on Allied Arts

WM. B. FAVILLE, *Chairman*	San Francisco, Calif.
EDWIN H. HEWITT	Minneapolis, Minn.
CHARLES Z. KLAUDER	Philadelphia, Pa.
FRANK B. MEADE	Cleveland, Ohio
J. MONROE HEWLETT	New York

Committee on Public Works

CHARLES A. FAVROT, *Chairman*	New Orleans, La.
WALTER D. BLAIR	New York
EDW. W. DONN, JR.	Washington, D. C.
WILLIAM MOOSER	San Francisco, Calif.
IRVING K. POND	Chicago, Ill.
JOHN P. B. SINKLER	Philadelphia, Pa.

Building Committee

WM. M. KENDALL, *Chairman*	New York
EDW. W. DONN, JR.	Washington, D. C.
JOHN RUSSELL POPE	New York, N. Y.
D. EVERETT WAID	New York

Committee on Competitions

RICHARD E. SCHMIDT, *Chairman*	Chicago, Ill.
JOHN C. AUSTIN	Los Angeles, Calif.
THOMAS R. KIMBALL	Omaha, Nebr.
J. C. LLEWELLYN	Chicago, Ill.
ARTHUR WALLACE RICE	Boston, Mass.
SYLVAIN SCHNAITTACHER	San Francisco, Calif.
CHARLES W. STEINBAUGH	Omaha, Nebr.
W. R. B. WILLCOX	Seattle, Wash.

Institute Publications

One Year:	
HERBERT B. BRIGGS	Cleveland, Ohio
CHARLES L. BORIE, JR.	Philadelphia, Pa.
Two Years:	
BEN J. LUBSCHEZ	New York
MILTON B. MEDARY, JR.	Philadelphia, Pa.
Three Years:	
WM. STANLEY PARKER, *Chairman*	Boston, Mass.
R. MAURICE TRIMBLE	Pittsburgh, Pa.

Structural Service

SULLIVAN W. JONES, *Chairman*	New York
ROLLAND ADELSPERGER	Chicago, Ill.
T. E. BILLQUIST	Pittsburgh, Pa.
J. L. HAMILTON	Chicago, Ill.
F. Y. JOANNES	New York, N. Y.
SMITH O'BRIEN	San Francisco, Calif.
H. W. TOMLINSON	Joliet, Ill.
STEPHEN F. VOORHEES	New York

Preservation of Historic Monuments and Scenic Beauties

HORACE WELLS SELLERS, *Chairman*	Philadelphia, Pa.
W. R. BRIGGS	Stratford, Conn.
ARTHUR BENTON	Los Angeles, Calif.
ARTHUR BROWN	San Francisco, Calif.
GLENN BROWN	Washington, D. C.
GEORGE CARY	Buffalo, N. Y.
CHARLES A. COOLIDGE	Boston, Mass.
REINHARDT DEMPWOLF	York, Pa.
WM. M. ELLICOTT	Baltimore, Md.
NORMAN M. ISHAM	Providence, R. I.
ELMER C. JENSEN	Chicago, Ill.
FISKE KIMBALL	Charlottesville, Va.
A. L. KOCHER	State College, Pa.
L. A. LIVAUDAIS	New Orleans, La.
THOMAS MACLAREN	Colorado Springs, Colo.
L. W. ROBINSON	New Haven, Conn.
HOWARD SILL	Baltimore, Md.
EGERTON SWARTWOUT	New York
ORNAN H. WALTZ	Ithaca, N. Y.
NAT GAILLARD WALKER	Rock Hill, S. C.

Community Planning

JOHN IRWIN BRIGHT, *Chairman*	Philadelphia, Pa.
F. L. ACKERMAN	New York
FREDERICK BIGGER	Pittsburgh, Pa.
M. B. BISCOE	Boston, Mass.
PARKE T. BURROWS	Davenport, Iowa
CHARLES H. CHENEY	Portland, Ore.
A. P. CLARK, JR.	Washington, D. C.
HERMANN DERCUM	Cleveland, Ohio
A. L. FECHHEIMER	Cincinnati, Ohio
BURT L. FENNER	New York
CARL F. GOULD	Seattle, Wash.
THOMAS G. HOLYOKE	St. Paul, Minn.
H. OLIN JONES	Greenville, S. C.
WALTER H. KILHAM	Boston, Mass.
E. C. KLIPSTEIN	St. Louis, Mo.

ROBERT D. KOHN.....New York
LOUIS LOTT.....Dayton, Ohio
ARTHUR L. LOVELESS.....Seattle, Wash.
JOHN A. MILLER.....Birmingham, Ala.
D. H. PERKINS.....Chicago, Ill.
ARTHUR W. RICE.....Boston, Mass.
HERMANN WISCHMEYER.....Louisville, Ky.
HENRY WRIGHT.....St. Louis, Mo.

Fire Prevention

F. E. DAVIDSON, *Chairman*.....Chicago, Ill.
JULIUS FRANKE.....New York
JOSEPH JACOBBERGER.....Portland, Ore.
GEORGE C. NIMMONS.....Chicago, Ill.
WM. J. SAYWARD.....Atlanta, Ga.

Registration Laws

RICHARD E. SCHMIDT, *Chairman*.....Chicago, Ill.
WM. P. BANNISTER.....New York
D. EVERETT WAID.....New York
EMIL LORCH.....Ann Arbor, Mich.

Lincoln Highway

ELMER C. JENSEN, *Chairman*.....Chicago, Ill.
(Committee of One)

McKim Memorial Fund

JOHN RUSSELL POPE, *Chairman*.....New York
(Committee of One)

School Building Measurements

WM. B. ITTNER, *Chairman*.....St. Louis, Mo.
JOHN J. DONOVAN.....Oakland, Calif.
F. A. NARAMORE.....Seattle, Wash.
D. H. PERKINS.....Chicago, Ill.
JAMES C. HOPKINS.....Boston, Mass.

Institute Membership

WADDY B. WOOD, *Chairman*.....Washington, D. C.
(Sub-committee to be appointed in each Chapter by Chapter Presidents)

War Memorials

HORACE WELLS SELLERS, *Chairman*.....Philadelphia, Pa.
(Chairman appoints additional members as required)

Foreign Building Cooperation

CHARLES BUTLER, *Chairman*.....New York
SULLIVAN W. JONES.....New York
WM. S. PARKER.....Boston, Mass.
L. C. HOLDEN.....New York
GEORGE H. GRAY.....New Haven, Conn.
WALTER D. BLAIR.....New York
CHARLES EWING.....New York
WILLIAM EMERSON.....Boston, Mass.
CHARLES A. FAVROT.....New Orleans, La.
C. H. WHITAKER.....Washington, D. C.
JULIAN C. LEVI.....New York
PAUL P. ORET.....Philadelphia, Pa.
HENRY H. KENDALL.....Boston, Mass.

Small Houses

EDWIN H. BROWN, *Chairman*.....Minneapolis, Minn.
(Chairman appoints additional members as required)

Fellowships and Honorary Members

W. R. B. WILLCOX, *Chairman*.....Seattle, Wash.
BURT L. FENNER.....New York
WM. B. FAVILLE.....New Orleans, La.
R. CLIPSTON STURGIS.....Boston, Mass.
EDWARD B. GREEN.....St. Louis, Mo.
H. VAN BUREN MAGONIGLE.....New York

Engineering Cooperation

E. J. RUSSELL, *Chairman*.....St. Louis, Mo.
WM. P. BANNISTER.....New York
JOHN M. DONALDSON.....Detroit, Mich.

State Societies

N. MAX DUNNING, *Chairman*.....Chicago, Ill.
(President will appoint member on recommendation of Chairman)

Book Reviews

The Caliph's Design. By Wyndham Lewis. The Egoist, Ltd. London, Eng.

A strange book this, its 71 pages consist of four parts and twenty-five chapters. It is concentrated reading and really, as the author himself says, is only a series of notes and short articles for future expansion into a book. These notes are assembled around and related to the parable of "The Caliph's Design," although the relation is often difficult to trace.

One day the Caliph arose from his bed of gold and for several hours he traced ardently, meaningless hieroglyphs on a piece of paper. After a long rest following this exhaustive effort, he forthwith called to him the most experienced architect and the most ingenious engineer in his dominions, and laid his scribbled sheet before them as the new design of a typical street in the capital city, being extremely dissatisfied with the old layout. The architect and engineer who quite naturally thought the whole thing a hugh joke and ridiculed it were dumfounded when ordered to have complete plans for the new street, following the lines of the Caliph's outlandish scribble, ready at ten the next morning. If the plans were not ready at ten then the architect and engineer would be decapitated. In despair they went about this task and fulfilled the Caliph's wish and finished in time "a series of the most beautiful plans that had yet been made in Bagdad . . . and within a month a strange street transfigured the heart of that cultivated city."

Of course Mr. Lewis tells it much more elaborately and beautifully and although you may not be able to relate all his future paragraphs to this parable, the little book can hardly fail to interest you, at times amuse you, and at other times make you angry, as for instance:

In the Preface:

"I have thought of a way for the Architect . . . . The Painter and the Engineer could buy him out, going into partnership, and produce what would neither be a world of boxes on the one hand, as it would be if the Engineer controlled house construction (*vide* skyscrapers), nor of silly antique fakes on the other, as happens when the Architect has his sweet and horrible way."

Under "Architecture:"

"Have you ever met an Architect? I do not mean a well-paid *pasticheur*, who restores a house or runs one up, in Tudor, Italian, or any other style. But a creative architect, or a man with some new power in his craft, and concerned with the aesthetic as well as the practical needs of the mass sensibility of his time?"

In "Child Art and the Naif:"

"The growth of the mind and of the body is so often not parallel, some people's 'mature' lives so long, others almost non-existent, that it is difficult to know where you are dealing with the art product of the child, or the child-like art of the adult."

Under "Machinery and Lions:"

"Just as the sculptors of Ninevah put the lions that were such immediate objects in their life, to good use in their reliefs; or the painters of the Sung period the birds and landscapes found by them in their wilfully secluded lives; so it was inevitable to-day that artists should get into their inventions (figures, landscapes, or abstractions) something of the lineaments and character of machinery."

But if we keep on quoting, this review will be as long as the book, which, as was said before, is bound either to interest you, amuse you, or anger you; perhaps all of these. It is then certainly worth reading.

The typography and general make-up are excellent.—B. J. L.

Housing and Community Planning.

Published in connection with the Committee on Community Planning of the American Institute of Architects.

JOHN IRWIN BRIGHT, *Associate Editor.*

Report of the Committee on Community Planning to the 53d Annual Couention of the American Institute of Architects.

An intelligent direction is necessary in any housing enterprise. In the case of the government, it produced houses whose main characteristics are quality, usefulness, and beauty. If the same degree of intelligent direction had been exercised by speculative interests it would have resulted in a subordination of all desirable features to the necessity of earning a profit on the investment. It is significant that we speak of the "necessity" of a profit and the "desirability" of good living conditions, because that state of mind is responsible for the indifference with which we view the disappearance, one by one, of all the desirable features of the home. When all is lost but private profit, we refuse to build, for that is the one thing which we canot bring ourselves to surrender.

The Government's War Housing.

The government, however, was able to do this, but the elimination of gain was, after all, a negative virtue and taken alone teaches but half the story. The positive virtue is the development of the community plan in which the welfare of all was considered before the supposed rights of any one individual. Housing produced by private enterprise, working primarily for a profit, cannot regard the social advantages of its customers as of equal value to the financial return on capital and it is therefore plain that if people wish to live under such admirable conditions as exist in most of these villages, the speculative builder must be barred out.

The physical arrangement of the houses is a distinct advance over the usual pre-war type. This was only to be expected, as never before was the national effort so concentrated on this problem, enlisting the best minds of the country in the effort to design and erect pleasing houses. Generally speaking, the houses were but two rooms deep and when the detached house was not possible, the rows were short and architecturally pleasing. It is to be hoped that these object lessons will exercise a stimulating influence on our future domestic architecture.

Unfortunately, these efforts have taught us nothing on the questions of land, finance, and management for the very good reason that the face of the government has been set against any study of these questions. As far as can now be seen, the houses will be sold to individuals and the values created by the community itself will ultimately revert to the individual or the speculator.

The Canadian Scheme.

In order to make it possible to build houses in Canada, its government has established a credit of $25,000,000 to be advanced to the different provinces. The entire fund has been distributed and will be used within one year, Ontario, on account of its greater population, receiving the largest proportion. The provinces lend to municipalities, which in turn lend to limited dividend housing companies or to individuals, the amount of the advance and the security varying with the circumstances. Each borrower in turn pays 5 per cent for the money and there is no overhead charge except in the actual designing and construction of the house. The loan runs from twenty to thirty years and is repaid in monthly installments. In addition to these enactments, all of the provinces appropriated funds of their own for housing, although the credits are smaller than those furnished by the Canadian Government.

With the exception of the province of Quebec, where an effort is being made to introduce the community-owned town, the theory of individual ownership and sale governs this experiment. The price of the house and the land is mentioned in the laws, but since the date of its promulgation, rising construction costs have made it necessary to somewhat lower the standards. It remains to be seen what will happen when, in the future, a dollar will buy more building than it does to-day, for the price of the land will then become a factor. While the land may be expropriated, it must be paid for at its market value and there is nothing in the law to prevent its mounting to a level which will again stifle production. This is a situation which has wrecked many housing schemes in the past.

In furnishing state aid to the prospective house builders the Government has tried to avoid entering into competition with private operators. In return for its lower rate of interest, it demands a certain standard of construction and design which is calculated to absorb any saving made in the use of Government money.

Active Work.

The active work of the committee during the last year has been confined chiefly to two things. First, the publishing of a report on the platting of areas for dwelling use and second, the organizing of a lecture tour on housing illustrated by moving pictures.

The study on land subdivision was written for the committee by Mr. Henry Wright, one of its members, and necessarily sets forth to a very large extent his own personal views on the subject. This is made clear in order that the main credit of the study should go to Mr. Wright himself. The JOURNAL will shortly undertake its publication.

The moving picture films for the lecture were ordered in England in the middle of 1919 for immediate delivery but have only arrived on the date of the filing of this report. As engagements for the lecture had been booked, the committee was forced to have a special set of pictures made

using recent domestic examples. These pictures have now been completed. Mr. Louis Lott, a member of the committee, has the lecture tour in charge and has made arrangements to show them in many localities. Using these and similar pictures, the chairman has delivered several lectures on community planning and has made a number of engagements for the near future.

The committee has received and answered a great number of questions on community planning coming from cities and Chambers of Commerce. The result of this work has been negative as without exception the questioners have acted as though under the impression that a community plan was a physical commodity mailable upon request. The efforts of the chairman and other members of the committee to present the question in a different light has in no case succeeded.

General Finding.

The general tenor of these requests seems to demonstrate that there is as yet no general public realization of the issues at stake. This can only be corrected by a campaign of education and in order to make a commencement on this line, the lecture tour has been undertaken. The committee hopes that the Institute will appropriate a sufficient sum of money for its continuance. The committee recommends that in presenting to the public the idea of community planning, a certain definite theory should be expounded. It is not enough to show pictures of charming houses. It should be taught that to obtain the result, certain changes connected with our ideas on finance and social rights must be effected. Not until industry is organized to produce socially useful goods can there be a real answer to the building problem, but without expressing itself on this question the Institute could perform a great public service in concentrating attention on immediate evils. The public expects its architects to advise it rightly on problems connected with plan and building and while rendering this service, we should fit ourselves to discuss the whole question. In this category, the protection of the value created by the community itself should receive the first consideration. This has been called inaccurately the unearned increment and the faculty definition has largely been the reason why its significance has not been generally comprehended. Increment is not unearned. It is earned, but, to use a bookkeeping expression, we have not credited the asset to the proper account. The neglect to balance it against its creative forces has permitted the impression that it is spontaneous in its origin and its rape is the right of the discoverer. It is the same logic which allows otherwise honest people to appropriate, without a qualm of conscience, the personal belongings forgotten in public conveyances.

We should make it clear that all of the value created by the community should revert to it. On the other hand, it is no less fitting that the prior rights of the individual to the values he created should receive recognition. The fair adjustment of these claims, conflicting at times, is a matter of judgment and not of principle, and, equitably arrived at will go far toward the solution of the land question. The Institute should urge that laws on taxation should be so formed that land speculation be eliminated. In this connection it should be pointed out that the general progress of recent town planning acts, in this and foreign countries, is along these lines.

The committee recommends that the doctrines be disseminated by means of the Journal, the public press and by pamphlets in addition to the lecture tour already under way.

The committee urges its successor to undertake the compilation and critique of town planning and zoning laws throughout the world in order that the usefulness and the trend of these ideas may be presented to the public in a concise form.

The committee does not consider its report conclusive. It will be content if the event shows that it has supplied to its successor a working instrument for future achievement.

The committee wishes to acknowledge the invaluable assistance which has been given it by the Editor of the JOURNAL. Its work would have been rendered vastly more difficult without his sympathy and advice.—JOHN IRWIN BRIGHT, *Chairman.*

NOTE.—Since the adoption of the above report there has been received from Brussels the following very interesting document concerning a financial plan for the rehousing of the workers of Belgium. Pursuant to the recommendations of the Committee on Community Planning, as contained in their report, this material is made available in the columns of the JOURNAL, although the report is of some length.

The translation has been carefully made in order to adhere wholly to the spirit of the author.

A Program for Financing the Rehousing of the Workers of Belgium

Introductory report by M. A. Van Den Bempt, Chief of the Bureau of Communal Property of the City of Brussels, submitted to the National Conference on Low Cost Dwellings in Brussels, April 24-25, 1920, under the auspices of the Union des Villes et Communes Belges.

I. Introduction.

The People's House, the Ownership of Land.

To give a logical conclusion to our study, we believe it necessary to explain that from the historic point of view, the community should remain or again become the owner of land and of the buildings erected thereon. To justify our opinion, we shall have to show, as succinctly as possible, by what steps the ownership of land, collective in its origin, has become private.

In the beginning of history, the communal ownership of land was not unique to any special country: de Laveleye notes similar observances in India, Germany, the North countries, in England, in Ireland. Everywhere the

ownership of land was collective and cultivation a common activity. One may admit that the village, the primitive type of the initial organization of communities, still retains the vestige of primitive communism. It is averred that in the unique ownership of property in common in France, as well as in Germany and in England, one may rediscover the origins of an ancient co-propertyship.

Man, at the beginning of history, sought in the family or in the clan, the means of defense and the satisfaction of his group instinct. From that time there has been born a legislation, long and complicated, the base of which has been to maintain collective ownership of the land. This legislation is notably clear in the Serbian code which consecrates all land to the community and excludes all private ownership. A law of Feb. 19, 1861, in Russia, clearly fixes the situation, in stipulating that "common usage is the mode regulated by custom by virtue of which the land is divided or from time to time allotted among the peasants, in fulfillment of the obligations attaching to use, with common responsibility for all."

The study of these questions leads to the conclusion that men everywhere grouped themselves naturally, lived together and cultivated the land in common considering it as the property of all. Then there followed a complete evolution. The exploits of conquerors destroyed the harmony of the existing society. Territory was divided among the victors.* A single man became the owner of both land and people. This is the origin of serfdom. It marks the end of the free man. It is the road leading toward the seignioralty of the Middle Ages.

But among people the group instinct has always remained. The slaves grouped themselves about their master. This permanent "elbow to elbow" existence gave birth to a community of obligations with complete exclusion of community of property. The slaves were compelled to cultivate a part of the land belonging to their master. This land was called "common land" or "common pasture."

The exchange of ideas and discussions slowly transformed the mentality of the people. They finally came to understand that in their narrow grouping they constituted a force, and this they proceeded to put into action. They began to apply pressure on their seignior. Through negotiations between tenant and master, the right to use became transformed into the right to possess. Usage was changed by contract. But it must be remarked that all of these transactions and conventions concluded between the two parties were still collective in form. The peasants, united, finished by becoming the collective owners of the land. But this situation did not put an end to constant abuses on the part of the master. In the face of these abuses, the peasants united themselves even more strongly in order to put an end to them.

Numerous proofs of this condition exist. A capitular of Charlemagne records the fact that evil practices on the part of the seigniors had obliged certain people to escape from the exactions through flight. Numerous lands were thus abandoned and reduced to solitude. The resistance of the peasants organized itself more and more completely. It was the origin of the serf societies. Their power became real. The seigniors were obliged to reckon with them, either through endless litigation or through insurrections. The serfs profited from the occasion by securing rights which were sealed in charters delivered by the seigniors.

As a result, the grouping of the peasants acquired an even more complete form. Their chiefs were chosen by election. The groups became communities. Thus were created those communes whose power is well known. Through force, through the power of finance, the communes obtained the concession of actual contracts, yet their autonomy did not exist. They still belonged to the seigniors, who sold them, gave them, transferred them, divided them. They were just as much exploited as were the peasants in the country.

It is not possible here to take up the history of the communes; we should stray too far from our study. But it is well to expose succintly just how, under the communes, the private ownership of land came into being. The land, collective at the beginning, became private property in the Middle Ages. A single man held under his domination, both land and people. The people rebelled at this condition and at the exactions of which they were the victims. They achieved their liberty and created the communes. The land thus became collective again.

But the communes changed their character. Created for the general good, they soon became dominated by a caste which appropriated, by money, by force, or by other means, the property and the functions of the communes. We shall endeavor, in the following lines, to explain this phenomenon as briefly as possible.

The commune, from its beginning, included classes with diverse tendencies and aspirations. Ecclesiastics, nobles, bourgeois, workers, laborers (the latter always considered as serfs) peopled the communes and essayed to make the most of their reciprocal claims. They demanded privileges. But a common desire animated them at the beginning. They wished to limit seignorial exploitation and they associated themselves for that purpose. Their power became real. Their emancipation, whether through peaceable or forcible means, was the result. It was the epoch of the revolt of the communes against the seigniors.

In the meanwhile the commune developed. It organized itself administratively. Public services became functions. The merchant and craft classes were formed for the purpose of economic betterment. It was, in fact, the origin of democratic government through communal assembly. This democratic regime did not maintain itself. The population of the commune rapidly fell into adversary classes. The most powerful, the richest, usurped the public functions. Oligarchy and anarchy soon became masters of the city. Beaumanior says: "We saw several fine towns where neither the poor nor the monks have any administrative power. The rich have all the power."

These social inequalities provoked irreducible dissensions between the two principal classes of the population; the proletariat, or the workers, and the aristocracy. Insurrections were numerous and bloody. The people were conquered, and the triumphant bourgeoisie usurped the powers of the commune, and later, its common property. These usurpations gave to the land its character of private property, and this transformation is the origin of the

*NOTE: The interested reader may care to consult the "Growth of the Manor," by P. G. Vinogradov (MacMillan).—*Editor.*

actual regime where we now find the land belonging to a few, although the true right to real property is collective.

If one examines objectively the evolution of societies, one must admit that logically and historically, the land should belong to the collectivity. The privilege of riches is not a sufficient reason, in our opinion, to justify the destruction of a regime which issues out of the natural aspirations of man. Essentially, man is born to live in common, think in common, possess in common. Furthermore, we may say that the communes, to-day, must create a common patrimony, not only to conform to their original character, but also to satisfy, for their populations, the well being which they have the right to demand.

Participation of Public Authorities

So far as concerns the special point with which we are occupied—the construction of low-cost dwellings—we esteem that the political line to be followed must secure, in the largest measure possible, the return to collective ownership of the land and the dwellings erected or to be erected thereon, principally for the workers. From the moral point of view, public authorities must make the effort necessary to cause the disappearance of the spirit of private possession. This spirit is condemnable because it carries in itself the germ of the narrowest egoism. It is the cause of the end, slow but sure, of all mutual confidence. For the workers, in particular, it is the cause of privations, of sufferings, alas! too often unknown, but which, nevertheless, must be made known.

The Results of Private Ownership

Whatever we may say, the private ownership of land is consecrated. It is the object of very extensive legislation. It has become a right of which one is free to dispose, cede without constraint, convert into money and bequeath to one's heirs or to others voluntarily chosen. But the right to a free disposition of land, the right to divide it voluntarily and without constraint, frequently sets up conditions incompatible with social needs.

The cities, limited at their origin by fortifications designed to protect them against the invasions and incursions of their enemies, grew in direct ratio to the growth of security felt by their population. The ensuing density became such that it was necessary to build a great number of lodgings for the townsmen. From the one side, the lack of all legislation governing building and hygiene, and from another side, the increment accruing to land through the accretion of population and the extension of industry and commerce, the resulting spirit of speculation led to the building of unhealthy houses, crowded too thickly on the land. The right to the private cession of land led to a defective and anti-hygienic lot division. The price of land was pushed to the extreme and the most scandalous speculations were the consequence.

Is this price justified? Is it just to hand the profit to a few? Must we not, on the contrary, ask for its return to the collectivity? These questions will be resolved later. In what concerns us, we shall examine somewhat the social consequence of the regime described.

The increment value added to land awakes, most naturally, the spirit of lucre. It is incontestable that this spirit is wholly incompatible with the desire to give to the occupant of a dwelling the maximum of well-being which he has the right to demand. It provokes also the fraudulent evasion of all legislation, no matter how rudimentary, as established by public powers. It leads to the search of means for giving the least possible for the most money obtainable. It breeds the epoch of unhealthy houses, of wretchedness, of stinking courts or barracks which are called "slums" by the English. It breeds, also, alas! the sorry era of epidemics, the death of thousands upon thousands, victims of the spirit of lucre and the appetite for gain.

Is one justified in reproaching Professor Einaudi for the following observations? "The class of land owners in towns fulfills no social function. It merely derives from its monopoly the means of extorting from individuals a constantly rising tribute. It exercises an evil influence on all social and economic life. In exciting real estate speculation it foments the continual periodic return of financial crises which, in themselves, are tragically disastrous; in holding land out of use, it raises the price of land, increases rents, and crowds the working population into indecent quarters. Habitations for the poor, as a matter of fact, are a very remunerative kind of investment, perhaps more remunerative than the houses of the rich which carry high maintenance charges. Finally, the helplessness of a population which is always seeking cheap rents, in connection with property owners who are unwilling to run the risk of building new houses, co-operates to render more acute, in the slums, the phenomenon of ground rents, and to perpetuate them in the large cities as a constant menace to public health, and even to the health of those same owners who draw such big profits from those very slums."*

Nevertheless, the situation constantly grows worse. Epidemics become more and more frequent. The sufferings of the people have become so great that the public authorities have felt obliged to intervene. In this connection, England may be cited as an example. Numerous sanitary housing laws have been enacted, for England particularly has realized the direction in which her efforts must be directed. Local authorities have rigorously adopted the policy of direct control. Moreover, they have been able to make use of land which, because of its doubtful rental possibilities, would otherwise have found no purchaser. Thus they have been able to give to some of the people good houses in healthy surroundings. This reveals the disadvantage of private ownership, which sees only one end—to make as much money as possible. The private owner will only build on land favorably situated, abandoning the rest and leaving vacant large areas whereon many people might be comfortably and hygienically housed. The example of England has not been followed elsewhere with the same care, particularly among us. Except for a few timid interventions by public authorities the field has been left free to private owners and speculators. Speculation in property is criminal. What tragedies are provoked!

Speculation Loans

Speculation is based primarily on large banking opera-

*The official report of the Reconstruction Commission of the State of New York contains the following statement: "This increased value that comes from the causes above mentioned is sufficient to deprive a large part of the workers of this state of the chance to get decent houses." See also the report of the Ontario Housing Commission.—*Editor.*

tions. Powerful financial organizations are created for the purpose of lending money to the humblest in order that he may buy land and construct a home. Nothing is more alluring to the worker than the prospect of some day owning his own home. The instinct of private property has been so well developed, propaganda has been so well directed to that end that the great mass of people is taken in. They contract for loans, they agree to annual repayments, which are further increased by requiring life insurance. The total payments are high, frequently too high, for they often exceed the means of the borrower. Then comes the bitter struggle to meet the payments. This is life devoid of all idealism. One only care haunts the debtor—to pay the installments when they are due. He is obliged to speculate even in the wages of his children, who are thus prematurely forced into industry. Their education is neglected, if not abandoned. Result—human beings, well endowed, cannot give to society what it exe cts from them, because of the lack of intellectual development. They are forced to earn, miserably, a little money that their parents may pay their contracted debts.

If illness falls upon these homes, the principal resources are consumed and then comes the impossibility of payment and the brutal foreclosure—vanishes the ardently cherished dream. There is no exaggeration in what we here say. We could if necessary, support our thesis with numberless examples. The unfortunate who find themselves in these extremities are nevertheless excusable. They have not pursued a sordid speculative gain. They are only the too numerous and too lamentable victims of a regime which leaves them only disillusion and misery' But there are others whose acts merit the light. They are those, who without scruple, have speculated in the most immoral sense of the word; who, out of property, so sacred in the eyes of certain ones, have made a game of chance and who, by their sharpness, have provoked the fictitious valuation of land.

It is in Germany that their action has best been studied. In that country, as elsewhere as well, one has played with land as one plays at the Bourse. Land changed hands several times within the same day. To avoid the expenses of such transactions, resort was had to mere verbal agreements. The operation was not authenticated until the final consummation, the first seller then deeding to the last buyer. One might cite the special case of a parcel which was sold five times within an hour, the price rising from 16,000 to 26,000 marks.

Loan credit facilities these so dubious transactions. Bankers advance money to people whom they know to be insolvent. It is upon their insolvency that they speculate. They appropriate, for a small price, the buildings erected on the land, as soon as their debtors fail to meet their obligations. Fictitious sales are made in order to force the belief in a fictitious value of land. Parcels of land of identical value, change hands, while the deeds record the double or triple of their real value. The simple are taken in. Without informing themselves as to the real value they buy land at an excessive value, thereby stimulating the disloyal act of the promoters and permitting an even more excessive profit. Societies which occupy themselves especially with such affairs give out false statements. They distribute dividends which are not warranted but which promote the belief in an astonishing prosperity. This belief is used to raise the price of land. This shameful business, this immoral gamble in a thing which legislation considers sacred must, after a time, provoke a terrible crisis. The victims will no longer be countable.

All of this permits us to look at the whole problem. The present regime, which leaves to the private owner the full and entire disposition of his land, constitutes a serious hindrance to the decent lodging of the laboring classes. The elementary regulations of hygiene and morality are unrecognized. By these acts, land owners have shown their moral inferiority. Does not the thirst for gold fetter the ideal of humanity?

Private ownership of land is also the cause of speculation, the immediate effect of which is the rise in fictitious land values. This provokes dishonest operations which are the cause of the ruin and despair of those who are so simple as to believe the lying propositions made to them. And this leads us to the conclusion that from the historic point of view as well as from that of the social and moral, it is desirable to make the maximum effort for the recapture, for the collectivity, of the ownership of land.

II. The Actual Situation.

A. The Lending Societies

In endeavoring to recapture the land for collective ownership, we must examine the problem of ways and means, at least in so far as concerns the dwellings of the people. Before hand, we must study what has been done in the present domain of political action affecting land and housing. The general effort has incontestably tended to develop, among workers, the spirit of private property. Legislation, except for the law of which we will speak later, accords a partial or total reduction in the important items of the cost of conveyance, stamps, registration, and advertising. It is certain that legislation has thus sought to encourage construction. And it has succeeded very well. Numerous societies have been formed for the object of contributing toward the building of workers' dwellings.

La Caisse d'Epargne, under special action, has facilitated the construction of numerous houses destined for the middle classes. We use this term with design, for it is incontestable that the workers have not benefited from measures which were really taken in their interest. We believe that we are able to affirm that those who enjoy small incomes, or salaries—all of those who belong to the middle classes, are those who have been most advantaged. Neither is it to be denied that workers have been able to build themselves homes, but is it necessary again to insist upon the privations which have thus been imposed upon them? Is it too daring to pretend that the great majority of workers have been unable to attain that end, lacking the first funds which are indispensable? For one point is certain—to buy land and build, either through the Caisse d' Epargne or through private sources, it is neccessary to have as a cover for the first advance, a part of the capital to invest in construction. Relatively few are the workers who can give to the banker the guarantee exacted! So sure is this that it is permissible to affirm that the law has

not by any means had the effect designed—to permit each to own his home. The same situation exists in private societies as on the Caisse d'Epargne, which offers a security difficult to find elsewhere.

It is nevertheless undebatable that

1. All societies, including the Caisse d'Epargne, are created for the purpose of earning profits.

2. All develop among the people a spirit which we consider to be deplorable, because anti-social from our point of view—the taste for private property.

3. They do not address themselves directly to the workers, for these are generally unable to meet the guarantee exacted by the capitalist.

4. They all proceed, contrary to the theory, historic and social, of the common ownership of land, which is essentially a collective possession.

B. The Role of the Communes in the Actual Situation—Public Land

Have public authorities ever acted differently? To make our thought concrete, let us see what has happened in Brussels.

The city of Brussels, as all the world knows, was considerably transformed during the second half of the last century. From a provincial town it has changed into the flourishing and splendid city that we all know. Disgusting quarters were demolished. They have given place to central boulevards, to the quarters of Van Artevelde, Notre-Dame-aux-Neiges, de la Regence, du Nord-Est, to the maritime installations, and others. The communal administration, owner of numerous building sites, offered them for sale. From the beginning, that which was considered as a godsend has been a speculation. Financial groups were formed. They became the holders of important blocks situated in the best quarters of the city. They also began the erection of buildings. Unfortunately for them, they hoped for a rapid transformation of the city. They forgot that a population does not change its habits in one day, and that it takes years for a provincial town to become a great commercial and industrial center. Their buildings were not well rented from the beginning, and their rents did not attain the sums hoped for. The builders were obliged, at the end, to acknowledge their failure. They could not pay their annual installments to the city which was obliged to foreclose. This was the origin of the present public property of the city of Brussels. This property, which ruined its owners, returns to-day an annual revenue of more than two millions francs, an amelioration due to the gradual transformation of the city. As for the other lands owned by the city and sold to individuals, they raise a very interesting question. The city sold them under two different plans. The first provided for payments by 66 annuities; the second, in 15 installments with simple interest. The land sold under annuity payments has returned to the communal treasury about 50 millions. Impartial calculations permit the statement that this land now represents a value of 177 millions. The land sold on installments produced for the city 27 millions. Its value to-day is 72 millions. The total sales effected since 1874 have produced an increment to the purchasers of 172 millions—enough with which to pay all the war costs of the city of Brussels.

It is remarked that these plus-values all went to individuals, although they were created by the community. Fortunes have thus been erected. We know, from personal knowledge, that more than 100 per cent profit was taken by the buyers within one year. Is this logical, and must we not seriously combat this urge toward a speculation which costs the community so dearly? It is necessary, and we repeat it, to retain for the profit of the community all the land taken through foreclosure (expropriation). Parcels not incorporated in streets should remain as collectively owned. It is not at all difficult to find a solution of the problem and we shall examine this later in studying the method of renting by the self-perpetuating (emphyteutic) lease.

C. Participation by the Communes in the Construction of Workers' Dwellings

How has the city of Brussels participated in the erection of workers' dwellings? Has that participation been sufficient? Our reply will be far from affirmative.

Originally, the city did not participate directly. A stock company called "Low-cost Dwellings for the Brussels district," in which the city of Brussels and its faubourgs were interested, was formed. The city of Brussels subscribed 300,000 francs, which returns an interest of 3 per cent. A very insufficient participation for a city of such density and in which there are still so many unhealthy districts and alleys.

During the last few years it seemed as though there was a more thorough understanding of our needs, but in spite of all, municipal participation has been very rudimentary. The two blocks in the rue Blaes and in the maritime quarter do not offer any desirable solution. Too few families can be lodged in them in conditions which approach comfort and cleanliness. And the 286 families sheltered in the rue Blaes and the 28 in the maritime quarter are a mere fragment in comparison with the thousands who still vegetate in slums at the ends of blind alleys where there is neither light nor air.

The workers' dwellings built by the city of Brussels in the rue Blaes cost as follows: land 2,589,424 francs; buildings, 2,561,419 francs, a total of 5,150,843. Those in the maritime quarter cost for land, 50,000 francs (valuation); buildings 281,058, a total of 331,058. The rents are not high, even though they include the amortization of the land cost. But it would have been possible to do a great deal better if we had boldly accepted the principle that a financial loss in such an undertaking would yield an enormous profit from the social point of view.

The real estate policy for the city of Brussels, as well as of the other cities in the country, may be summed up as follows:

1. Creation of new districts and the resale to individuals of the land not used for streets. This means the loss to the collectivity of all the increments which accrue in the future.

2. Wherever private ownership prevails there exists the commercial exploitation which we have chronicled. The city needs money and it is of course necessary to increase taxes. Result, the community which might play a serious part in regulating rentals, neglects this end and thus causes a considerable wrong to the community. Every-

where we find landlords raising rents in frightful proportions. Those landlords who try to combat this spirit of gain find themselves at a disadvantage for they cannot point to the example of one of the largest property owners—the city of Brussels.

3. Participation by means of groups created especially for the building and exploitation of workers' dwellings is insufficient.

4. Direct participation by the community is wholly neglected. The needs are now such that enormous sums must be spent in dwellings for the workers. Financial difficulties surely stand in the way, but perhaps there are also political reasons.

III. The Solution

A. State Participation. The Under-Capitalization of the National Society

We have now shown, from our point of view, how we should look at the real estate policy of the communes. Land, communal in its very essence, must conserve this character. The communes should heavily subsidise all efforts toward a solution of the housing crisis. The question is of vital importance and the urgent need of a solution is beyond all doubt.

We must cease evading and resolutely examine the conditions through which a solution may most easily be reached; we must find out how to take that indispensable action which the situation demands; we must establish, with all sincerity, our real housing needs.

Figures show that before the war 20,000 houses were built annually. Since the war building has ceased. When will it begin again? No activity in this direction is to be expected for a long time. Materials are lacking and their price is so high as to discourage even those most earnest to help. But, admitting that it might be possible within one year to resume normal building, we find ourselves faced with a deficit of 140,000 houses. The war caused the destruction of 150,000, so that we may say that the country lacks a total of about 300,000 houses. If we fix an average cost of 7,000 francs per house, which is not exaggerated in view of the cost of labor and materials, we find that a solution of the housing crisis calls for the sum of 2,000,000,000 francs. What are the public authorities doing in this emergency? Very little.

A law was passed October 11, 1919, creating the National Society of Low Cost Houses. The law was discussed in The Parliament of 1913-1914, but the war prevented its enaction. And here a brief analysis seems indispensable. This Society has for its object the creation of local or regional societies for building low-cost dwellings, and to these societies the central Society may make advances of money. Actually it is the same principle that applies with respect to State and local railways.

The Society functions under the stock company laws. Its capital is variable and may be subscribed for by the State, the provinces, or the local and regional societies agreed upon. The houses to be built are for workers of all kinds—in general for those whose means do not permit them to pay more than an average rent. The stock of the local or regional societies may also be subscribed for by the State, the provinces, the communes, charitable and other societies, and individuals. The State may, on demand of a local regional society, subscribe for one-fourth of the capital but no more. The subscribers may have their shares, over and above ten per cent of their holdings retired in 66 annual payments, bearing interest at 6 per cent.

The State grants 100,000,000 francs to the National Society, payable as required, and it is provided that money furnished in 1914 shall bear 3 per cent interest. No advance of which we know has been made. This leaves the future rate of interest undertermined. The law authorizes the Caisse d'Epargne to extend the operations permitted under the law of August 9, 1889, under which a considerable reduction in the cost of legal expenses is effected.

Under the law, local authorities notify the mayor of the existence of unhealthy dwellings. He is obliged to take action within a month, failing which, the local society may appeal to the king. If the limit of delay fixed by the king and the mayor is exceeded, the government may proceed to condemn the dwellings and turn them over to the local society to be replaced with new ones of low-cost. Health standards, inspection, and the prevention of speculation will be dealt with through regulations to be established by the National Society, which is under the control of the government, and which exercises control over the local and regional societies. In case of condemnations the government is to be advised by committees as to the conditions under which any land may be resold. The law also anticipates serious money losses.

Such are the general aspects of the new law. Will it solve the thorny problem of housing? We have shown that Belgium needs 300,000 houses which will cost, at a fair estimate, 2,000,000,000 francs. The State advances 100,000,000 francs, which at once indicates how insufficient is the aid it extends, while the subscriptions to be received from other sources will never cover the capital expenditure required. Direct State action is thus necessary. It seems idle further to insist on this point, but the public authorities ought not to view this as other than a social problem. Let us explain.

In our belief, it will be necessary to reckon upon material losses to the collectivity. But we must be made to see that these losses have only a relative importance in respect to the social end pursued and which must take precedence over any material question. The law provides that the money advanced by the State in 1914 shall bear interest at 3 per cent. Is it to be understood that future advances should pay a higher rate? This appears to be the belief, and if it is so, then a decision should be made. The problem, as we have said, is general and collective, and its social character must not be neglected. By assuring a decent home to workers we shall guarantee the present generation against certain bankruptcy and give to the future state healthy and morally educated citizens.

When such a purpose guides legislation we do not hesitate to affirm, and public opinion will support us, that financial sacrifices are justifiable and defensible. A material loss is always recoverable, but a social loss is not. The first involves only temporary privations, but the second has its repercussion on the future of the race.

We believe that the ideal solution would be for the public authorities to advance the necessary money without any charge at all, but such a proposal would be fiercely fought.

We prefer therefore to suggest a repayment of the money invested by means of 66 annuities including a 2 per cent interest charge. The point of departure thus being established—that is to say, we accept voluntarily the loss of a certain interest—we must examine the methods by which we shall be able to attain a prompt and radical solution. The National Society should cease all administrative functions. Its decisions must be reached rapidly. The spirit of initiative must be greatly encouraged. All the administrative red tape should be cut. Those who direct the affair should have knowledge of the important part they play and should so inspire others that all delays would be felt to be criminal if every effort had not been made to avoid them.

The law provides that the State shall advance money to the National Society, which apportions it among the local or regional societies according to their respective needs. It appears then that the government merely intends to conserve its customary public character. The dwellings would become the property of the societies after they have repaid the money lent. This will make for considerable progress if the dwellings remain the property of the societies for we would get rid of the private speculator. At the same time, we again insist upon the fact that logically and historically, the community should be the owner of these properties. Thus the collectivity will possess the means for effectively fighting the spirit of gain in the domain of houses and rents. Public authorities will not have to speculate or to demand the highest possible return, and healthy dwellings can be guaranteed to the population.

The law is permissive and not mandatory; the communes may participate financially in such operations. Is the law permissive only because it is believed that we shall find some public officials not interested in the question of the common welfare? Has it also been thought that guided by a spirit of vulgar politics, a compulsory law might be used to hamper the construction of workers' dwellings? It is sometimes very difficult to speak frankly in these matters, through fear of wounding others by touching the truth too closely. But, under the present circumstances, we consider it right to speak frankly. the general welfare takes precedence over any private interest. We admit, then the possibility that if the law was made compulsory, those officials who administered it might be inclined to use it in such a way as to drive away from their electorate such workmen as held political views opposed to their own. We must dismiss any such evil calculation, which is the reason why we do not hesitate to demand that the communes be obliged to participate financially. It is everywhere necessary that houses be built to meet local needs and the obligations we desire to see imposed on the communes would compel them to meet those needs. It would be sad indeed to have to believe that our difficulties arise from the apathy of some or the chicanery of others.

*B. Participation by the *Province*

After houses are built we must determine the conditions of their rental. We must very evidently seek means for keeping rents as low as possible. These houses will be built for the necessitous classes and the rents should be in proportion to the resources of their occupants. This aspect of the question must be examined in detail. Public authorities should participate on a large scale, it is true. But how shall they participate? We must adhere closely to the question of public utility, from which point of view the question can be treated precisely as we treat the erection of school buildings. We see no difference between the obligation to educate and the obligation to guarantee a home which insures the health and morality of the family.

In the construction of school buildings the State pays one-third and the province one-sixth. The same rule should apply in the building of houses, and we shall later show just how this may be done without hardship to either party. The provinces own the land necessary for the houses. We believe it logical to demand that they cede this land to the communes. This should be done without cost, or at least upon a very small payment based upon the social purpose pursued.

C. Participation of the Commune. Condemnation of Unhealthy Areas. Repairs. Allotment of Land by Perpetual Lease. Amortisation. Budget Provisions

If the before-mentioned participations are enforced the part to be played by the communes will be much simpler, although an arduous task will still confront them. They must act with the intention of becoming the owners of the houses to be built; also, they should arrange to construct the largest number possible. First of all, and certainly in the congested districts, their work should be directed toward the destruction of the unhealthy areas. Condemnation should begin and as soon as possible we should demolish the slums in blind alleys. The new construction should be planned with respect to hygiene and salubrity. The communes must assume the expense of streets, sewers, water, gas, and electricity. As for the land to be built upon, that should remain the property of the commune. It may be let to local groups under *perpetual leases of 66 years duration. For it, a merely nominal payment should be sufficient, in order that no claim for its possession might be made at the end of the lease renewal period.

Have the communes a right to lease land in this manner? To our mind, no doubt exists. And this system will not prevent the local groups from acting just as though they were the actual owners. The emphyteutic lease is legalized by the law of January 10, 1824, and this law recognizes that the lease gives the full and entire enjoyment of property belonging to another. It cannot exceed 99 years and the period of renewal must not exceed 27 years. The lessee thus enjoys the right to the property, but may do nothing which might diminish its value. The owner is not obliged to make any repairs, which must be made by the lessee, who may even sell his rights, hypothecate, or encumber them during the life of the lease. He has the right, at the expiry of his lease, to remove the improvements he has made, in the absence of stipulations to the contrary. If the lessee has injured the property he may

*From a Federal point of view, the Belgian provinces would coincide with the States. From a State point of view, they would coincide with counties.

*Note: The author refers to this form of lease as emphyteutic and no doubt as referring to emphytensis under the Roman code. Evidently, however, the Belgian law prescribes certain renewal conditions for the emphyteutic lease, as cited by the author later on.—*Editor.*

be compelled to forfeit his rights, or at least to restore the property to its previous condition and give guarantees for the future.

Thus the emphyteutic lease guarantees the rights of both parties. Under it the commune would remain the owner of the property, and as in our hypothesis, there would be no charge for the lease, one immediately sees the precious advantage which would result from this combination. The rent could be diminished in proportion to the amortization, if it were necessary to repay the cost of the land. The local group, in the meanwhile could act just as though it actually owned the property. The fact, in our hypothesis, that the houses should revert to the commune does not in any way weaken our argument. On the contrary, the law gives to the proprietor the right to prescribe the manner in which the property should be kept. It thus follows that the communes will have full power to assure the proper maintainence of a property which is to become their own later on. At the expiry of the leases they will possess an important property under their direct control.

It now remains to examine the methods by which the communes will be capable of assuring themselves of ownership at the expiry of the leases. In principle, the State ought to surrender the capital which it advances for the construction of popular houses. But the financial situation of the country is such that the problem seems difficult of a solution in this way under present conditions. Thus we must find another means of repaying the capital advanced. We must count however upon an advance by the State, in the beginning, of the funds necessary, to be repaid in 66 annuities. We again repeat that these advances should bear a minimum interest—2 per cent as we have said—and that the loss through interest should be a public charge. The problem then remains of determining the conditions under which repayment should be made.

In all great industrial undertakings it is necessary to provide for the financial and the industrial amortization. The financial amortization we would place at the charge of the communes, because they ought to justify their right to the property to be built. The industrial amortization we would charge to the occupants of the houses, which is just. If it is true that the present generation makes sacrifices for them, it is none the less true that they in their turn ought to accept sacrifices for the benefit of the future generations. They ought then to contribute to a fund which would permit the replacement of too old houses, the demolition of those built to-day, or the erection of still more houses to care for the increasing population. Therefore, we conceive the following conditions for these amortizations.

The commune should provide in its annual budget an item permitting the repayment of the 66 annuities, with 2 per cent interest. But we have also maintained that the State and the provinces should share in these projects as in the case of school building. On the side of receipts we would therefore enter one-third of the annuity as borne by the State, and one-sixth as borne by the province. It is also understood that the State and the province would share in the same proportion in the purchase of the land.

Concerning the industrial amortization, we may admit that a well built house should last a hundred years. Thus we may establish the industrial amortization at 1 per cent of the cost of construction. The local society will assume the collection of these annual payments during its tenure of 66 years, after which they will be collected by the commune. The accumulated sums will be placed at interest in the bank.

In fact, the interest on the construction capital will be assured by the communes by means of the 66 annuities above described. The occupants of the houses will therefore only have to bear the industrial amortization, the cost of repairs, insurance, administration, and loss in rentals. Say that these upkeep charges would amount to 1 per cent of the capital invested, and that it would be necessary to collect another 1.75 per cent for other expenses. Adding the 1 per cent for industrial amortization, and we have a total of *3.75 per cent on the capital invested in construction as the charge to the tenants. Thus it can be seen how low will be the rents to be asked in the future. The State will be reimbursed for the capital it has advanced; true, it will suffer a loss in interest on the capital, but we have already stated why we consider this loss necessary. The communes will be the owners, through annual payments which will not overload their budgets, of the buildings erected. The tenants will enjoy comfortable and salubrious homes at a minimum rental. The result, highly social, will certainly exercise a serious influence on house rentals. In fact, the whole population will benefit from these advantages made possible for the workers.

Application of the Above Principles

Let us take the town of Couillet, which in 1917, organized a competition for the building of a new quarter called "Les Sarts Communaux," and devoted to workers' houses. The competitors were to make a town plan showing the location of the houses. The ground measured about 40 hectares, (about 100 acres). The lots were to be from four to five thousand square feet in area. It was calculated that after deducting sufficient land for streets and squares there would be space for 500 houses. Granting that each house would cost an average of 7,000 francs, the total expense of construction would amount to 3,500,000 francs.

Let us now apply our principles.

The National Society created by the recent law advances to the local society the sum of 3,500,000 francs, which builds 500 houses on land leased to it by the commune under the emphyteutic lease. The commune, as the ultimate owner of the houses at the end of 66 years, writes into its budget an annual charge of 97,974.27 francs, which would permit it to pay back the 3,500,000 francs, at 2 per cent interest, in 66 years. As the same principle is here applied as in building schools, the State would participate to the extend of one-third, or 31,991.43 francs, and the province, in the proportion of one-sixth, or 15,995.71 francs. Thus the annual subsidies to the commune would amount to 47,987.14, which through a similar annual payment during 66 years, would become the owner of the 500 houses.

Concurrently with the building of this new quarter, the commune would have to bear the expense of construction for streets, squares, sewers, water, gas, and the usual public utilities. Street construction costs are naturally at the charge of the community and cannot be avoided. The town will therefore have every interest in the installation of a good

street system, for it is far-seeing economy thus to provide for the prosperity of the city. Such charges will be cancelled in a fairly short time for the financial resources of the town will be augmented by the taxes derived from the new houses, while public utilities are generally so profitable that their expense of installation will easily be repaid.

Consumption and prices are sufficient to permit the amortization of the capital in a fairly short time.

Administration

As for the local society, after construction, it must administer the property on the following principles:

1.00% for the industrial amortization.....	35.000 francs
1.00% for maintenance.....	35,000 francs
1.75% for overhead, insurance, unrentals...	61,250 francs
	131,250 francs

Thus the total rent of the 500 houses would be 131,250 francs, or 262.50 per house. Such would be the result of the operation. Can its social character be denied? Can it be maintained that it would not have a positive effect on the housing crisis?

Conclusion

Our program is this:

1. In the greatest possible measure the return of the land to the commune.

2. Workers houses to be built and owned by the communes, thus getting rid of private speculators.

3. Money to be advanced by the State at a minimum interest, the loss due to the low rate to be borne by the collectivity, for the problem is a social one.

4. Formation of a national and of local and regional Societies for Building Low-Cost Houses.

5. Leasing of land by the communes to the local and regional groups. The lease should have a duration equal to that of the life of the groups, 66 years, and the rental should be merely nominal in order to prevent any claim for possession by the lessor at the end of the lease renewal period.

6. Financial amortization of the capital invested in construction should be at the charge of the communes, who will provide in their budgets an amount sufficient to retire the capital in 66 anuity payments at 2 per cent.

7. The State subsidizes the communes up to one-third of this annuity and in the expense incurred in buying the land.

8. The provinces to contribute in the proportion of one-sixth.

9. The local groups will construct and manage the houses. They will guarantee the industrial amortization, rentals to be on a basis of 3.75 per cent of the entire construction capital including all costs.

10. In the future the commune, having accomplished the financial amortization, becomes the proprietor of the houses when the local groups have ceased to exist. It continues then the industrial amortization through its term of 100 years, and as owner, it administers the property by direct control.

Correspondence

More About the Bricklayers' Party

To the Editor of the Journal:

In the March issue there appeared in the columns of the JOURNAL a letter by Mr. Bright describing the opening of a class in plan reading conducted by Mr. Victor Abel for the members of Bricklayers' Union No. 1 in Philadelphia. The significance of this movement lay in the fact that the bricklayers themselves had felt the necessity for a larger understanding of their craft, and had become conscious of the fact that it no longer appealed as an occupation to their sons and the group of young men who would naturally be interested in it. The wiser men among this group, who were all journeymen, came to the conclusion among themselves that a class could be formed, which would show the men the possibilities of their craft, and that the best way to bring this about would be to familiarize themselves with drawings and specifications, in order that they might have an intelligent knowledge of what they were creating, and why they were creating it.

These men appealed to Mr. D. K. Boyd and through his efforts such a class was started, and on its opening night was addressed by several architects, as described in Mr. Bright's letter. Every Thursday night during the winter some two hundred of these men have come to these classes and have shown a remarkable interest in the work. Last week Professor Gumaer, of the University of Pennsylvania, told them the history of brickwork, illustrated with slides showing its possibilities from the Babylonian era down to the brickwork of the Georgian period in this country.

It was my pleasure to speak to these men not long ago on the occasion of the last meeting of the class for this season, and I was impressed with the enthusiasm with which they spoke of the brickwork which had been shown them by Professor Gumaer, and especially with their interest in the examples of very early brickwork used to create decorative surfaces by the use of sculptural forms. This interest encouraged me to explain to them that all creative work is a form of art, and that the motive for all great art lay in the love of work; and that this motive, which made the immortal masterpieces that they had seen in some of this brickwork, was the same motive which made masterpieces of men's lives and of all they undertook under its inspiration; and that the selfish greed that made so much work a worthless sham was the same motive that made men's lives equally worthless shams and their undertakings a series of failures; that the architecture they had seen in Professor Gumaer's slides was nothing more nor less than a record of the history of various peoples at various times, created subconsciously by just such men as themselves, animated, however, by the principles that made their guilds or crafts the real outlet for the best that was in them.

These men, as stated above, were all journeymen bricklayers, exceedingly diffident and unwilling to express their personal aspirations, but it was obvious in talking to them that here is a great field in which the architects of this country may get in direct touch with the men whose

workmanship must always reflect the motive behind it, and I am convinced that, until that motive is guided in the right direction, we can hardly look for great things in the building art. I would therefore urgently recommend to the various Chapters that some such classes be started wherever possible, with the hope of bringing the architect more directly in contact with the real workmen actually engaged in executing his work.

The following quotation from Ecclesiasticus, for which I am indebted to Mr. C. R. Ashby's book entitled "Where the Great City Stands," would seem to imply that a consideration of the importance of the artificer and the motives underlying his work, is not an entirely new thought.

"So is every artificer and work master that passeth his time by night as by day * * * All these put their trust in their hands; and each becometh wise in his own work. Without them shall no city be inhabited and men shall not sojourn nor walk up and down therein. They shall not be sought for in the council of the people * * * But they shall maintain the fabric of the world; and in the handiwork of their craft is their prayer."

I happened to read this book last night and find it a very illuminating post-war document although written in 1917. It is a book after my own heart in that it does not quarrel with any system or systems, but analyzes them all seeking the motives behind them as well as the influence upon the motives by such complete changes in the methods of production as the introduction of machinery during the nineteenth century. Although written during the war, he frankly admits the war is a clear red line dividing the past from the future and points the way to the right point of view in all the arts and crafts for the future.

—M. B. Medary, Jr.

Institute Business

New Members Elected

Name	*Chapter*
Fred R. Hopkins	Buffalo
David Cochran Myers	Central New York
Frank R. Happ	Georgia
Ernest Daniel Ivey	Georgia
Arthur R. Dean	Illlnois
Walter R. Faught	Kansas City
Chandler C. Cohagen	Minnesota
Angus V. McIver	Minnesota
Fred Fielding Willson	Minnesota
Charles Carsten Platt	New York
Clarence Wilson Brazer	Philadelphia
G. Edwin Brumbaugh	Philadelphia
William M. Campbell	Philadelphia
Christopher Clift	Philadelphia
Frederick A. Muhlenberg	Philadelphia
Howell Lewis Shay	Philadelphia
Reginald Jeffrey Wadsworth	Philadelphia
Ernest Howard Yardley	Philadelphia
Harwood Hewitt	Southern California
Ross Gordon Montgomery	Southern California
Alfred C. Finn	Texas
Charles Gregg	Washington, D. C.
Albert L. Harris	Washington, D. C.
Frederick Vernon Murphy	Washington, D. C.

News Notes

The appointment of John P. B. Sinkler, Fellow of the Institute and recently President of the Philadelphia Chapter, as city architect of Philadelphia has been announced by Mayor Moore of that city. Mr. Sinkler's willingness to give up his private practice in order to accept a position of public service was warmly commended by the Mayor in making the appointment, which he did upon recommendation of the Philadelphia Chapter.

Mr. George Bain Cummings announces his entrance into partnership in the firm of Lacey, Schenck & Cummings, of Binghampton, N. Y.

At the April meeting of the San Francisco Chapter it was announced that Mr. Arthur Brown had been elected to the Institute of France.

According to press reports the British Government is considering an increase of the subsidy granted to private builders of houses. The result of the present grant of 150 pounds per house has not stimulated building as much as was hoped. Barely 1200 houses have so far been put under way since the subsidy came into operation.

The citizens of Manchester, England, are asked to contribute £10,000 to a fund for the restoration, furnishing and maintenance of Sulgrave Manor, in Northamptonshire the ancestral home of George Washington. Altogether £25,000 is needed; of this sum £10,000 will be given by the Sulgrave Institute of America.

The project was put forward by the Anglo-American Society early in the year, and it was given strong support in the inaugural meetings held in Manchester. Lord Burnham held that the proposal was for a graceful act which would manifest in tangible form the spirit of amity existing between the United States and ourselves.

At the recent Institute Convention it was decided to form a permanent organization to be known as the Council of Architectural Registration Boards with Professor Emil Lorch of the Michigan State Board as President and Emory Stanford Hall, President of the Illinois State Board as Secretary. The primary purpose of the organization is to bring together the experience of those actually engaged in the work of registration, to make a comparative study of all existing laws and to work out a plan to facilitate reciprocity between states having such laws. Mr. W. P. Bannister of the New York State Board and Mr. M. I. Kast of Pennsylvania together with Mr. Richard E. Schmidt, Chairman of the Institute Committee on Registration Laws are to make a digest of the various laws and report to a meeting of the Association to be held at some central point in October or November of this year. Another meeting will be held at the time of the next Institute Convention.

All those interested in this work should write Mr. Hall, Secretary, 64 East Van Buren Street, Chicago, Illinois.

To work with the Institute Committee on Foreign Building Cooperation, there has been created a similar committee in France, as follows:

M. M. Girault, Membre de l'Institut, Président de la Fédération des Architectes de France.

Cordonnier, Membre de l'Institut, Président de la Société Centrale.

Deglane, Membre de l'Institut.

Louvet, Président des Diplômés.

Hermant, Ancien Président des Diplômés, et Architecte en Chef de la Ville de Paris.

Berard, Président de la Coopérative d'Architectes Diplômés pour les Régions Libérées.

Greber, Architecte Diplomé par le Gouvernement.

Structural Service Department

SULLIVAN W. JONES, *Associate Editor*
LEROY W. KERN, *Assistant*

In connection with professional societies, organized bodies, and the following committees of the Institute:
BASIC BUILDING CODE, CONTRACTS, FIRE-PREVENTION, STRUCTURAL SERVICE

Calcium Chloride and Vitri-Flux.

The Granitex Company of New York City has been advertising extensively a material called "Vitri-Flux." The claims made for "Vitri-Flux" and the character of the advertising employed are calculated to arouse curiosity in a technical mind. An investigation, instituted by the Structural Service Department has produced some data which may be helpful to the architect.

(1) CLAIM MADE FOR VITRI-FLUX: That it is a carefully compounded combination of chemicals in liquid form, practically colorless and of neutral reaction.

Investigation of Claim No. 1: A sample of Vitri-Flux was obtained from the Granitex Company and submitted to Dr. Parker C. McIlhiney, A. M., Ph. D., Consulting Chemist for quantitative analysis.

The following is Dr. McIlhiney's report:

"I have examined the sample of 'Vitri-Flux' received from you on April 9 for analysis, and find in it:

	Per cent
Calcium	10.61
Chlorine (as chloride)	18.40
Sulphuric Acid (as SO_3)	0.05
Oxides of Iron and Aluminum (in solution)	0.08
Alkalies (calculated as Sodium Chloride)	0.04
Oxides of Iron and Aluminium (in suspended matter)	0.09
Specific Gravity of Solution (equivalent to 31.7 Be.)	1.279

"The 'Vitri-Flux' appears to be substantially a solution of ordinary calcium chloride in water, containing 29.4 per cent of calcium chloride, and to contain nothing else except such traces of impurities as would naturally be expected in such a product."

(Signed) PARKER C. MCILHINEY.

Comparison with Calcium Chloride: Calcium chloride is a commercially manufactured material and is readily obtainable. It is a white, odorless salt that for many years was a waste product of various chemical industries, especially in connection with the manufacture of bromine and salt. Calcium chloride now has become a regular article of commerce and is used for many purposes in the industrial arts. It dissolves readily when exposed to the air and in water. It is largely used in solution and in place of common salt brine for refrigeration and ice making and, in its granulated form for laying the dust on roads and tennis courts. Commercial calcium chloride is usually marketed as 75 per cent calcium chloride. That is, each 100 lbs. contains approximately 25 lbs. of water and 75 lbs. of the chloride.

Calcium chloride is commercially manufactured in two forms, solid and granulated. The chemical composition of each of these is the same. Owing to greater manufacturing costs the granulated is the more expensive. About five pounds of commercial 75 per cent calcium chloride dissolved in one gallon of water will produce a solution of practically the same chemical composition as "Vitri-Flux." No special appliances or treatments are required to produce such a solution.

The Semet-Solvay Company, one of the largest manufacturers of calcium chloride, publish the following analysis of their 75 per cent Calcium Chloride:

Calcium Chloride, $CaCl_2$	73.59
Sodium Chloride (Salt) NaCl	1.45
Insoluble in Water	.07
Water	24.89
Total	100.00

(2) CLAIM MADE FOR VITRI-FLUX: That Vitri-Flux comes in steel drums—at a list price (subject to quantity discounts) of $1.30 per gallon. That it should be mixed in the proportion of one gallon of Vitri-Flux to each ten gallons of water used.

Comparison with Calcium Chloride. Calcium chloride is shipped in air-tight steel drums. The solid, or fused, is usually packed 610 lbs. net to a drum, and the granulated 350 to 375 lbs. net. These are the generally accepted weights, but as some manufacturers put out a different size drum the amount of calcium required should be estimated in pounds, not drums.

The Semet-Solvay Company states that the average price (April, 1920) for calcium chloride per single drum in the warehouse is $1.50 per 100 lbs. for the solid and $2.00 for the granulated. That in car load lots these prices would be less.

The cost per gallon for the raw material required to make a solution of practically the identical chemical composition as "Vitri-Flux" is represented by the cost of approximately five pounds of calcium chloride at from one and one-half to two cents per pound, or about eight to ten cents per gallon, plus the cost of a gallon of water.

The addition of five pounds of commercial 75 per cent calcium chloride to eleven gallons of water will produce, according to the analysis, a solution of practically the same chemical composition as the addition of one gallon of "Vitri-Flux" to ten gallons of water.

(3) CLAIM MADE FOR VITRI-FLUX: That the cost of Vitri-Flux is more than met by the saving in construction cost made possible by its use.

Comparison of Cost of Vitri-Flux and Calcium Chloride, per cubic yard of Concrete: The quantity of water per cubic yard of concrete varies according to the consistency of the mix, proportions and kind of materials employed. For an average mix, however, from 55 to 65 gallons of water is used per cubic yard of concrete. According to the recommendations of the Granitex Company that one gallon of Vitri-Flux be added to each ten gallons of water, from 5 to 6 gallons of this material would be required per cubic yard of concrete. The cost of 5 gallons of Vitri-Flux is stated

to be $6.50 (subject to quantity discount). It is thus claimed that a saving of more than $6.50, less the quantity discount, per cubic yard is made possible in construction cost through its use.

Twenty-five pounds of commerical 75 per cent calcium chloride, at a cost of from thirty-eight to fifty cents will produce, if added to the water used in mixing each cubic yard of concrete, a concrete of practically the same chemical analysis as Vitri-Flux.

(4) CLAIM MADE FOR VITRI-FLUX: That Vitri-Flux has been tested under actual working conditions. That there are plenty of examples of Vitri-Flux construction years old.

Investigation of this Claim: In reply to an inquiry on these points by a member of the Structural Service Committee the following replies were received:

"Referring to that portion of your letter in which you ask us to furnish you with a list of buildings where our material has been used, we have to advise that in view of the fact that our material has only been on the market for a very short time, we are somewhat limited in our ability to furnish this particular information. It is a fact, however, that Vitri-Flux was used in the construction of a concrete road in Jacksonville, Florida, about three years ago, which we understand has given excellent satisfaction. The Westinghouse-Church-Kerr Company has used the material quite extensively and we believe it would be advisable for you to communicate with their Mr. Chapman who would be able to give you information that will be of real interest."

Mr. Chapman was communicated with and the following reply was received:

"Replying to your letter of the 31st ultimo relative to the use of Vitri-Flux, would say that we have used this material on concrete floor surfaces with very satisfactory results up to the present time. We have not had these floors in long service but the very quick hardening and the very easy finishing, together with a surface that seems to be unscratchable, indicates that the service will be all that could be expected of it. Our foremen report that they are quite pleased with the results.

The writer has also used it to waterproof his cellar, which leaked very badly during the recent spring storms. The waterproofing was accomplished by a cement-sand mortar coat on the inside of the wall with average thickness of not over ¼ inch. This mortar was mixed with a 10 per cent solution of Vitri-Flux and the effect has been entirely satisfactory. The writer's experi enc with this material so far has been sufficiently satisfactory to induce him to become financially interested in the Granitex Company."

(Signed) CLOYD M. CHAPMAN.

No other information then is contained in the above letters was received.

(5) CLAIM MADE FOR VITRI-FLUX: That it has been investigated and indorsed by the Investigating Committee of Architects and Engineers of New York City.

Investigation of this Claim: In reply to a request for information on this claim we are in receipt of the following letter:

"We have your inquiry of the 14th inst.

"Through an error on the part of their advertising agency a partial report, which we had given them for a special purpose, was issued in circular form, with an entirely misleading caption."

"Very truly yours,

"INVESTIGATING COMMITTEES OF ARCHITECTS AND ENGINEERS,
(Signed) "R. M. HOOKER, *Secretary*."

(6) CLAIM MADE FOR VITRI-FLUX: That it lowers the freezing point of concrete about 6 degrees Fahrenheit.

Comparison with Calcium Chloride: The addition of calcium chloride to water lowers the freezing point. The degree to which the freezing point is lowered depends on the amount of the chloride used.

The Semet-Solvay Company publish the following table on the freezing point of various calcium chloride solutions:

Lbs. 75% Solvay Cal. Chl. per Gal.	*Freezing Point Degrees Fahrenheit.*
.27	29.48
.36	28.58
.45	27.68
.55	26.60
.64	25.52
.74	24.26
.92	19.76
1.46	18.0
1.83	12.5
2.20	6.5
2.59	− 2.0
2.99	−12.5
3.38	−23.5
3.75	−36.5

It will be seen that about 0.6 of a pound of calcium chloride to the gallon of water will lower the freezing point about six degrees. This is approximately the amount of calcium chloride per gallon in a one to ten solution of Vitri-Flux. It would appear from the analysis that the Granitex Company is justified in its claim that Vitri-Flux lowers the freezing point of concrete about six degrees.

(7) CLAIM MADE FOR VITRI-FLUX: That it has no detrimental or objectionable effect on portland cement or concrete. That it permanently strengthens all concrete mixtures. That it increases the compressive strength 50 per cent to 60 per cent in standard mixtures and triples the strength of the leanest mixtures. That in a series of tests, with 28 day old concrete it increased the compressive strength 58 per cent. That it materially accelerates setting and hardening. That in construction work its use is particularly demanded where great wear or other difficult conditions are to be met and that for roads and floors its use is indispensable.

Comparison with Calcium Chloride: The Engineering News-Record, March 13, 1919, published the following:

"As the result of some experiments made by the Bureau of Standards to develop a method to accelerate the rate at which concrete increases in strength with age, it was found that the addition of small quantities of calcium chloride to the mixing water gave the most effective results. A comprehensive series of tests was inaugurated to determine further the amount of acceleration in the strength of concrete obtained in this manner, and to study the effect of such additions on the durability of concrete and the effect of the addition of this salt on the liability to corrosion of iron or steel embedded in mortar or concrete.

The results to date indicate that in concrete at the age of two or three days the addition of calcium chloride up to 10 per cent by weight of water to the mixing water results in an increase in strength, over similar concrete gaged with plain water, of from 30 to 100 per cent, the best results being obtained when the gaging water contains from 4 to 6 per cent of calcium chloride.

Compressive strength tests of concretes gaged with water containing up to 10 per cent calcium chloride, at the age of one year, give no indication that the addition of this salt has had deleterious effect on the durability of the concrete.

Corrosion tests that have been completed indicate that the presence of calcium chloride, although the amount used is relatively small, in mortar slabs exposed to the weather, causes appreciable corrosion of the metal within a year. This appears to indicate that calcium chloride should not be used in stuccos, and warns against the unrestricted use of this salt, in reinforced concrete exposed to weather or water."

The Engineering News-Record also published, June 26, 1919, an article by Mr. H. Eltinge Breed, Consulting Highway Engineer, New York City, from which we quote:

"A series of tests were completed to determine the advantages in use of Calcium Chloride solution to hasten the setting of cement concrete.

Laboratory test samples were prepared and tested at ages varying from one day to one year. . . . They indicate the use of a 4 per cent solution of calcium chloride as mixing water for cement concrete increases the strength attained at all ages up to one year.

Beyond that it is still problematical but what evidence we have indicates certainly no deterioration, and, a probable, but slower gain. The maximum increase appears to be about 20 per cent at the age of one month."

Note: The diagram illustrating the article indicates a very slight increase in compressive strength at the end of one year.

It would appear from these two articles that a solution of the chemical analysis of Vitri-Flux would increase the strength of concrete at the end of twenty-eight days as claimed but that at the end of one year that very little additional strength is gained by the use of calcium chloride. It appears also that solutions containing calcium chloride are not regarded as safe to use for stucco on metal lath or for reinforced concrete exposed to moisture.

The New Standard Construction Classification

Adopted by The American Institute of Architects

Prepared by the Committee on Structural Service of The American Institute of Architects

1. Preparation of Site.
2. Excavation.
3. Masonry Materials.
4. Concrete and Concrete Work.
5. Brick Work.
6. Foundations.
7. Waterproofing and Dampproofing.
8. Stone Work.
9. Architectural Terra Cotta.
10. Partitions, Furring, and Fireproofing.
11. Paving.
12. Roofing, Sheet Metal, and Skylights.
13. Structural Steel and Iron.
14. Miscellaneous Steel and Iron.
15. Ornamental Metal Work.
16. Fire Resisting Doors and Windows.
17. Special Doors and Windows.
18. Vaults and Safes.
19. Carpentry.
20. Furring and Lathing.
21. Plastering.
22. Marble and Slate.
23. Tile and Tile Substitutes.
24. Plastic Floors.
25. Painting and Finishing.
26. Glass and Glazing.
27. Hardware.
28. Furnishings.
29. Plumbing.
30. Heating and Ventilating.
31. Electrical Work.
32. Refrigeration.
33. Elevators.
34. Power Plant.
35. Equipments, Industrial and Other.
36. Construction Plant.
37. Models.
38. Landscape.
39. Acoustics.
40. Regulations.

1. PREPARATION OF SITE.

1*a*. Demolition of Structures.
  1*a*1. Ownership of Materials.
  1*a*2. Storage of Salved Materials.
  1*a*3. Sprinkling.
1*b*. Protection of Trees, Shrubs and Sidewalks.
1*c*. Top Soil Removal and Storage.

2. EXCAVATION.

2*a*. Tests of Subsoil.
  2*a*1. Pits.
  2*a*2. Borings.
    2*a*21. Dry.
    2*a*22. Wash.
  2*a*3. Loading.
  2*a*4. Test Piles.
2*b*. Excavated Material, Disposal of.
2*c*. Blasting.
2*d*. Open Caisson.
2*e*. Shoring.
2*f*. Sheet Piling.
  2*f*1. Wood.
  2*f*2. Metal.
2*g*. Rock Dressing.
2*h*. Tunneling.
2*i*. Underpinning.
2*j*. Back-Filling.
2*k*. Dredging.

3. MASONRY MATERIALS.

3*a*. Cement.
  3*a*1. Portland.
  3*a*2. White Portland.
  3*a*3. Non-Staining.
  3*a*4. Natural.
  3*a*5. Keenes.
3*b*. Integral Compounds.
  3*b*1. Set Accelerating.
  3*b*2. Hardening and Dust Proofing.
  3*b*3. Acidproofing.
  3*b*4. Waterproofing.

3. MASONRY MATERIALS—Continued.

3c. Lime.
- 3c1. Lump.
- 3c2. Hydraulic.
- 3c3. Hydrated.
- 3c4. Specials.

3d. Sand.
- 3d1. Grading.
- 3d2. Testers.

3e. Coarse Aggregates.
- 3e1. Crushed Stone.
- 3e2. Gravel.
- 3e3. Clinker.
- 3e4. Slag.

3f. Water.

3g. Brick.
- 3g1. Common.
- 3g2. Face.
  - 3g21. Vitreous.
  - 3g22. Semi-Vitreous.
  - 3g23. Rough Texture.
  - 3g24. Glazed.
  - 3g25. Enameled.
  - 3g26. Concrete.
- 3g3. Sand-Lime.
- 3g4. Paving.
  - 3g41. Shale and Clay.
  - 3g42. Cork.
  - 3g43. Composition.
- 3g5. Hollow.
- 3g6. Refractory.

3h. Gypsum and Gypsum Blocks.

3i. Structural Terra Cotta.
- 3i1. Floor Arches.
- 3i2. Exterior Walls.
- 3i3. Partitions.
- 3i4. Fireproofing.

3j. Rubble Stone.

3k. Concrete Blocks.

3l. Mortar Colors.

3m. Mortar.
- 3m1. Cement.
  - 3m11. Lime Gauging.
- 3m2. Lime.
  - 3m21. Cement Gauging.
- 3m3. Lime-Cement.
- 3m4. Non-Staining.
- 3m5. Gypsum.
- 3m6. Mixing.

3N Wall ties & anchors

4. CONCRETE AND CONCRETE WORK.

4a. Concrete. (Mixes.)
- 4a1. Mass.
- 4a2. Reinforced.
- 4a3. Floor fills.
- 4a4. Floor Topping.
- 4a5. Mixing. (For added compounds, see 3b.)
  - 4a51. Machine.
  - 4a52. Hand.
  - 4a53. Measuring.

4b. Concrete Work.
- 4b1. Forms.
  - 4b11. Wood.
  - 4b12. Metal.
  - 4b13. Others.
- 4b2. Placing. (For handling plant, see 36a.)
- 4b3. Reinforcing Systems and Reinforcements.
- 4b4. Expansion Joints
- 4b5. Inserts and Accessories.
- 4b6. Pre-Cast.
- 4b7. Fireproofing.
- 4b8. Surfacing.
  - 4b81. In the Form.
  - 4b82. Walls.
  - 4b83. Floors.
  - 4b84. Paving.

4. CONCRETE AND CONCRETE WORK—Continued.

- 4b9. Tanks.

4c. Physical Properties Tests

5. BRICK WORK.

5a. Laying Methods.
- 5a1. Bonds.
- 5a2. Joints and Pointing.
- 5a3. Cleaning.

5b. Backing for Stone and Terra Cotta.

5c. Fireproofing.

5d. Fire-Stopping.

5e. Arches.

5f. Reinforcements.

5g. Carving. (For industrial stacks, see 3507.)

5h. Chimneys.
- 5h1. Flue Linings.
- 5h2. Tile Thimbles.
- 5h3. Chimney Pots.
- 5h4. Fireplace Design.
- 5h5. Fireplace Linings, Brick.
- 5h6. Trimmer Arches and Hearths. (For iron ash dumps, linings, clean-outs, throats, and dampers, see 14e.)

6. FOUNDATIONS.

6a. Piling.
- 6a1. Wood.
- 6a2. Concrete.

6b. Caissons, Air.

6c. Grillages.

6d. Sub-Drainage.

6e. Retaining Walls.

7. WATERPROOFING AND DAMPPROOFING.

7a. Waterproofing. (Against static head.)
- 7a1. Membranous.
- 7a2. Integral.
- 7a3. Plaster Coat. (For compounds used in 7a2 and 7a3, see 3b.)

7b. Damp Proofing. (No static head.)
- 7b1. Waterproofed Mortar.
- 7b2. Coatings.
  - 7b21. Exterior Surfaces.
  - 7b22. Interior Surfaces.

8. STONE WORK.

8a. Rubble.

8b. Cut.

8c. Artificial.

8d. Cutting and Surfacing.
- 8d1. Carving.
- 8d2. Models.

8e. Setting. (Mortar, see 3m.)
- 8e1. Clamps and Anchors.
- 8e2. Stain-Proofing.
  - 8e21. Painting.
  - 8e22. Parging.

9. ARCHITECTURAL TERRA COTTA.

9a. Material.
- 9a1. Manufacture.
- 9a2. Finishes.
- 9a3. Trial Setting.

9b. Setting. (For mortar, see 3m.)
- 9b1. Anchoring.
- 9b2. Backing.

10. PARTITIONS, FURRING, AND FIREPROOFING.

10a. Structural Terra Cotta.

10b. Gypsum Block.

10c. Concrete.

10d. Reinforcements. (For solid plaster partitions, see 20 and 21.)

10e. Metal.

THE NEW STANDARD CONSTRUCTION CLASSIFICATION

11. PAVING.

11a. Concrete.
- 11a1. Templates and Screeds.
- 11a2. Expansion Joints.
- 11a3. Bituminous Carpets.

11b. Brick.
11c. Stone Block.
11d. Asphalt.
11e. Composition Block.
11f. Wood Block.
11g. Cork Brick.
11h. Macadam.
- 11h1. Bituminous Binders.

11i. Gutters and Curbs. (For curb guards, gutter bridges, catch basins, and manhole fittings, see 14.)
11j. Vault Lights.

12. ROOFING, SHEET METAL, AND SKYLIGHTS.

12a. Decks or Flat Roofs.
- 12a1. Bituminous, Built-Up.
  - 12a11. Tile Surfacing.
  - 12a12. Slate Surfacing.
  - 12a13. Gravel or Slag.
- 12a2. Bituminous, Prepared.
- 12a3. Canvas.
- 12a4. Sheet Metal.

12b. Pitched Roofs.
- 12b1. Bituminous, Prepared.
  - 12b11. Roll.
  - 12b12. Shingles.
- 12b2. Slate.
- 12b3. Tile, Clay.
- 12b4. Tile, Concrete.
- 12b5. Asbestos Shingles.
- 12b6. Metal Shingles and Tile.
- 12b7. Sheet Metal. (For wood shingles, see 19d.)

12c. Flashings.
- 12c1. Metal.
- 12c2. Bituminous.
- 12c3. Plastic.

12d. Gutters, Leaders and Accessories.
12e. Ventilators.
12f. Pressed Sheet Metal Columns.
12g. Sheet Metal Ceiling.
12h. Skylights.
- 12h1. Puttyless Type.
- 12h2. Putty Glazed.
- 12h3. Glass.
- 12h4. Glazing.

12i. Painting.

13. STRUCTURAL STEEL AND IRON.

13a. Design and Shapes.
13b. Fabrication.
13c. Erection.
13d. Painting and Protection.
- 13d1. Cleaning.
- 13d2. Shop Painting.
- 13d3. Field Painting.

13e. Inspection and Tests.
13f. Steel Lumber.
13g. Physical Properties and Tests.

14. MISCELLANEOUS STEEL AND IRON.

14a. Sidewalk Fittings.
- 14a1. Area Gratings.
- 14a2. Sidewalk Door and Frames.
- 14a3. Coal Hole Covers, Frames and Doors.
- 14a4. Curb Guards.
- 14a5. Gutter Covers and Bridges.

14b. Door and Window Openings.
- 14b1. Wheel Guards.
- 14b2. Bucks, Structural Shapes.
- 14b3. Lintels, C. I.
- 14b4. Gratings.
- 14b5. Sheet and Plate Doors and Shutters.

14. MISCELLANEOUS STEEL AND IRON—Continued.

14c. Fire Escapes and Balconies.
14d. Platforms, Ladders and Railings.
14e. Fireplace and Chimney Accessories.
- 14e1. Ash Dumps.
- 14e2. Throats and Dampers.
- 14e3. Fireplace Linings.
- 14e4. Clean-out Doors and Frames.

14f. Flag Poles, Steel.
- 14f1. Poles.
- 14f2. Steps and Supports.
- 14f3. Painting and Finishing. (For lightning protection, see 31f.)

14g. Pipe Columns.
14h. Wall Bearing Plates.
14i. Metal Smokestacks.
14j. Portable Steel Buildings.
14k. Hangers and Anchors.
14l. Garbage Receptacles.

15. ORNAMENTAL METAL WORK.

15a. Bronze. (Compositions and finishes.)
- 15a1. Architectural.
- 15a2. Sculptural.

15b. Brass.
15c. Cast Iron.
15d. Wrought Iron.

16. FIRE-RESISTING DOORS AND WINDOWS.

16a. Doors, Frames and Appurtenances.
- 16a1. Hollow Steel.
- 16a2. Metal Covered Wood.
- 16a3. Tin Clad.
- 16a4. Underwriters' Standards.
- 16a5. Combined Bucks and Trims.
- 16a6. Picture and Other Moulds.

16b. Windows and Fittings.
- 16b1. Metal Covered Wood.
- 16b2. Hollow Metal.
- 16b3. Heavy Gauge Solid.
- 16b4. Solid, Rolled and Drawn Shapes.
- 16b5. Underwriters' Standards.

16c. Fire Shutters.

17. SPECIAL DOORS AND WINDOWS.

(Note: Special features are generally confined to the hardware used.)

17a. Doors.
- 17a1. Revolving.
- 17a2. Counterbalanced.
- 17a3. Canopy.
- 17a4. Folding.

17b. Windows.

18. VAULTS AND SAFES.

18a. Built-In Vaults.
18b. Fireproof Vestibules.
18c. Portable Safes.
18d. Chests.
18e. Protective Systems.

19. CARPENTRY.

19a. Lumber.
- 19a1. Classification.
- 19a2. Grading Rules.
- 19a3. Treatments.
  - 19a31. Rot Prevention.
  - 19a32. Curing and Drying.
  - 19a33. Fireproofing.

19b. Framing.
19c. Docks and Bulkheads. (For piling, see 6a.)
19d. Roof and Wall Coverings.
- 19d1. Shingles.
- 19d2. Siding.

19. CARPENTRY—Continued.

19e. Millwork.
- 19e1. Windows.
  - 19e11. Weather Strips.
  - 19e12. Caulking.
- 19e2. Doors.
- 19e3. Shutters. (For Venetian Blinds, see 28g.)
- 19e4. Moulds and Trim.
- 19e5. Stairs.
- 19e6. Veneering.
  - 19e61. Glues and Glueing.
- 19e7. Partitions and Booths.
  - 19e71. Sliding, Rolling, Folding.
- 19e8. Columns.
- 19e9. Flooring.
  - 19e91. Grading Rules.

19f. Wall Boards. (For Plaster Board, see 21d.)
19g. Building and Sheathing Papers, Felts, Quilts.
19h. Fly Screens and Screen Doors.
19i. Flag Poles.
19j. Portable and Pre-Cut Buildings.
19k. Grounds and Nailing Plugs.
19l. Combination Sheathing and Lath.

20. FURRING AND LATHING.

20a. Furring.
20b. Lathing. (For Plaster Board, see 21d.) (For Combination Sheathing and Lath, see 19l.)
- 20b1. Metal.
  - 20b11. Wire.
  - 20b12. Expanded Metal.
  - 20b13. Self-Furring.
  - 20b14. Solid Plaster Partitions.
  - 20b15. Composite.
- 20b2. Wood.

20c. Corner Beads.

21. PLASTERING.

21a. Plain.
21b. Ornamental.
- 21b1. Artificial Stone.
  - 21b11. Caen Stone.
- 21b2. Artificial Marble.
- 21b3. Compo Ornament.
- 21b4. Standard Moulds.

21c. Keenes Cement.
21d. Plaster Boards.
21e. Stucco.
- 21e1. Cement.
- 21e2. Magnesite.
- 21e3. Lime.

21f. Scrafitto.
21g. Bonding and Stain-Proofing Coatings.
21h. Acoustical Properties.

22. MARBLE AND SLATE.

22a. Interior Marble.
22b. Interior Slate.
22c. Alberene Stone.
22d. Marble Mosaic.
22e. Terrazzo.
22f. Structural Glass. (For slate blackboards, see 35b.)

23. TILE AND TILE SUBSTITUTES.

23a. Vitreous and Semi-Vitreous.
- 23a1. Wall.
- 23a2. Floor.

23b. Glazed and Enameled.
23c. Faience.
23d. Promenade.
23e. Cork.
23f. Rubber.
23g. Composition.
23h. Acoustical.

24. PLASTIC FLOORS.

24a. Magnesite.
24b. Mastic.
- 24b1. Heavy Service.
- 24b2. Light Service.

25. PAINTING AND FINISHING.

25a. Raw Materials
25b. Wood.
- 25b1. Exterior.
- 25b2. Interior.

25c. Stucco.
25d. Plaster.
25e. Masonry.
- 25e1. Brick.
- 25e2. Concrete.
- 25e3. Concrete Floors.

25f. Metal. (For Roofs, see 12i).
25g. Canvas and Fabrics.
25h. Decorative.
25i. Lettering.
25j. Reflecting Surfaces.

26. GLASS AND GLAZING.

26a. Sheet Glass.
26b. Plate Glass.
26c. Wired Glass.
26d. Prismatic. (Regularly refracting.)
26e. Diffusing. (Irregularly refracting and scattering.)
26f. Obscured.
26g. Leaded and Stained.
26h. Glazing.

27. HARDWARE.

27a. Builders.
- 27a1. Pulleys, Weights, Chains, Cords.
- 27a2. Window Cleaners.
- 27a3. Hangers, Door.

27b. Finishing.
27c. Specialties.
- 27c1. Reversible Windows.
- 27c2. Casement Specialties.
- 27c3. Door Operators.
- 27c4. Sash Operators.

28. FURNISHINGS.

28a. Metal.
- 28a1. Lockers.
- 28a2. Furniture.

28b. Wood.
- 28b1. Seating.
  - 28b11. Church.
  - 28b12. School.
  - 28b13. Chairs.
- 28b2. Tables and Desks.
  - 28b21. Library.
  - 28b22. School.
  - 28b23. Office.
- 28b3. Cases.
  - 28b31. Show.
  - 28b32. Book.
  - 28b33. Wardrobes and Cases.
- 28b4. Willow and Wicker.
- 28b5. Upholstery and Trimmings.

28c. Wall Coverings.
- 28c1. Fabrics.
- 28c2. Paper.

28d. Draperies.
28e. Window Shades.
28f. Awnings.
28g. Venetian Blinds.
28h. Hardware, Upholsterer's.
28i. Floor Coverings and Accessories.

29. PLUMBING.

29a. Design.
29b. Drainage.
  29b1. Pipe and Fittings.
    29b11. Physical Properties and Tests.
  29b2. Ejectors and Sump Pumps.
  29b3. Sewage Disposal.
29c. Water Supply.
  29c1. Pipe, Fittings, and Valves.
  29c2. Meters.
  29c3. Heaters and Boilers.
  29c4. Filters.
  29c5. Softeners.
  29c6. Sterilizers.
  29c7. Storage and Pressure Tanks.
  29c8. Pumps.
29d. Fire Protection.
  29d1. Sprinklers.
  29d2. Hose Racks, Valves, and Fittings.
29e. Gas.
  29e1. General.
  29e2. Generators and Producers.
  29e3. Lighting Fixtures.
29f. Air.
29g. Plumbing Fixtures.
29h. Bath Room Accessories.

30. HEATING AND VENTILATING.

30a. Design.
30b. Warm Air Systems.
  30b1. Furnaces.
  30b2. Pipe and Fittings. (For Registers, see 30e.)
30c. Steam and Water.
  30c1. Boilers.
  30c2. Pipe, Valves, and Fittings. (For Physical Properties and Tests, see 29b11.)
  30c3. Insulation.
  30c4. Radiation.
30d. Ventilating.
  30d1. Blowers and Fans.
  30d2. Air Washers.
  30d3. Air Filters.
30e. Registers.
30f. Temperature Regulation.

31. ELECTRICAL WORK.

31a. Design.
31b. Conduit and Fittings.
  31b1. Rigid.
  31b2. Flexible. (Metallic.)
  31b3. Fabric.
  31b4. Tile.
  31b5. Waterproof.
  31b6. Outlet Boxes.
31c. Wire and Cable.
31d. Wiring Devices.
31e. Panel Boards.
31f. Illuminating Equipment.
  31f1. Reflectors.
  31f2. Lamps.
  31f3. Lighting Fixtures.
    31f11. Metal.
  31f12. Glass.
  31f13. Composition.
31g. Heating Appliances.
  31g1. Ranges.
  31g2. Miscellaneous Small Units.
31h. Power Equipment.
  31h1. Generators.
  31h2. Motors.
  31h3. Switchboards and S. B. Apparatus.
  31h4. Rheostats and Controllers.
  31h5. Transformers.
  31h6. Domestic Generating Units.

31. ELECTRICAL WORK—Continued.

31i. Signaling and Communicating Systems.
  31i1. Bell-Ringing Transformers and Batteries.
  31i2. Bells and Annunciators.
  31i3. Alarms.
  31i4. Telephones.
  31i5. Time Clocks and Stamps.
  31i6. Watchman's Time Detectors.
  31i7. Telautograph.
31j. Lightning Protection.

32. REFRIGERATION.

32a. Design.
32b. Machinery and Fittings.
  32b1. Pipe and Fittings.
  32b2. Insulation.
32c. Refrigerators.
32d. Small Domestic Units.
32e. Specialties.

33. ELEVATORS.

33a. Engineering Requirements and Design.
  33a1. Traffic Data.
  33a2. Platform Sizes.
  33a3. Duties.
    33a31. Loads.
    33a32. Speeds.
    33a33. Acceleration.
33b. Passenger, Power.
  33b1. Electric.
    33b11. Traction. (Direct drive, 2 to 1 rope geared, worm or helical gear.)
    33b12. Winding Drum. (Worm gear.)
  33b2. Hydraulic.
    33b21. Plunger.
    33b22. Rope Geared.
  33b3. Steam.
33c. Freight.
  33c1. Electric.
    33c11. Traction.
    33c12. Winding Drum.
  33c2. Hydraulic.
    33c21. Plunger.
    33c22. Rope Geared.
  33c3. Gravity.
  33c4. Hand.
  33c5. Steam.
33d. Dumbwaiters.
  33d1. Power.
  33d2. Hand.
33e. Escalators.
33f. Car Enclosures.
33g. Door and Gate Interlocks and Closers.
33h. Signals.
33i. Devices.
33j. Spiral Chutes.

34. POWER PLANT.

34a. Design.
34b. Boiler Room Equipment.
  34b1. Boilers and Accessories.
  34b2. Condensers.
  34b3. Economizers.
  34b4. Super-Heaters.
  34b5. Grates.
  34b6. Stokers.
  34b7. Mechanical Draft.
  34b8. Tube Cleaners.
  34b9. Separators.
  34b10. Fuel Oil Equipment.
  34b11. Powdered Coal Equipment.
34c. Coal and Ash Handling.
  34c1. Conveyors.
  34c2. Pulverizers.
34d. Cranes and Trolleys.

34. POWER PLANT—Continued.

34*e*. Valves and Operators.
34*f*. Pumps.
34*g*. Regulators.
34*g*1. Damper.
34*g*2. Feed Water.
34*g*3. Pressure Water, Steam, Gas.
34*h*. Engine Room Equipment.
34*h*1. Steam Engines.
34*h*2. Internal Combustion Engines.
34*h*3. Turbines.
34*h*4. Compressors. (For electrical power apparatus, see 31*h*.)
34*i*. Miscellaneous.
34*i*1. Gas Producers.
34*i*2. Oiling Systems.
34*i*3. Oil Storage.
34*i*4. Oil Filters.
34*i*5. Water Cooling.
34*i*6. Combustion Recorders.

35. EQUIPMENTS, INDUSTRIAL AND OTHER.

35*a*. Theatre.
35*b*. School.
35*c*. Library.
35*c*1. Book Stacks and Lifts.
35*d*. Kitchen and Bakery.
35*e*. Abattoir.
35*f*. Laundry.
35*g*. Barber Shop.
35*h*. Laboratory.
35*i*. Gymnasium.
35*j*. Church. (For seating, see 28*b*1.)
35*j*1. Chimes.
35*j*2. Organ.
35*k*. Baths.
35*l*. Hospitals.
35*m*. Garage.
35*n*. Commercial Buildings.
35*n*1. Mail Chutes.
35*n*2. Pneumatic Tubes and Other Conveyors.
350. Industrial Plant.
3501. Material Handling Machinery.
35011. Conveyors, Power.
35012. Conveyors, Gravity.
35013. Elevators.
35014. Cranes.
35015. Industrial Railways.
3502. Ovens, Kilns, Furnaces, Convertors.

35. EQUIPMENTS, INDUSTRIAL AND OTHER—Continued.

3503. Presses.
3504. Machine Tools.
3505. Miscellaneous Plant.
3506. Chemical Apparatus.
3507. Brick Stacks.

36. CONSTRUCTION PLANT.

36*a*. Temporary Buildings.
36*b*. Concrete Mixing and Handling Machinery.
36*c*. Hoisting Plant.
36*c*1. Platform Lifts.
36*c*2. Hod and Other Hoists.
36*c*3. Derricks.
36*c*4. Engines, Steam, Electric.
36*c*5. Boilers.
36*d*. Excavating Plant.
36*e*. Scaffolds and Ladders.
36*f*. Piledrivers.
36*g*. Trucks.
36*h*. Small Tools.
36*i*. Industrial Railroads.

37. MODELS.

38. LANDSCAPE.

38*a*. Grading.
38*b*. Soil Testing.
38*c*. Fertilizers.
38*d*. Paths. (For roads, see 11.)
38*e*. Planting.
38*e*1. Grass and Sod.
38*e*2. Trees.
38*e*3. Shrubs.
38*e*4. Plants.
38*f*. Greenhouses.
38*g*. Garden Furniture.

39. ACOUSTICS.

39*a*. Technical Data.
39*b*. Materials.

40. REGULATIONS.

40*a*. Laws.
40*a*1. Contracts.
40*b*. Building Codes.
40*c*. Underwriters.

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